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Journal of the Society of Arts.

FRIDAY, FEBRUARY 16, 1855.

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NOTICE TO INSTITUTIONS.

The Council have the pleasure to announce that at their request, the Lords Commissioners of her Majesty's Treasury have kindly given directions for the presentation and distribution to the Institutions in Union with the Society, of a Report, lately issued, "On the Re-organisation of the Civil Service," being a continuation or sequel to that issued on the same subject some months since, which was in like manner presented to the Institutions.

ELEVENTH ORDINARY MEETING.

Wednesday, February 14, 1855.

The Eleventh Ordinary Meeting of the One Hundred and First Session, was held on Wednesday evening, the 14th inst., the Astronomer Royal in the Chair.

The following Candidates were balloted for and duly elected Ordinary Members:—

Bowditch, Rev. William Renwick, B A.	Douglas, Robert
Browning, Richard, Jun.	Homersham, Sam. Collett
Chantrell, George Frederick	Tayler, John George

On the table was exhibited by Mr. Webster, the numismatist, a series of silver pennies, from Anglo-Saxon times down to the present day, including the Maunday penny, showing the progressive variations in weights as given in the Table, (page 213.) There was also a series beginning with the silver penny and halfpenny of the time of Charles I. and the Commonwealth, followed by copper tokens of one farthing, and through successive reigns farthings and halfpennies; the first penny occurring in the time of George III., and terminating with copper fractions of a penny of the later reigns, of the value of 1-8th, 1-12th, 1-16th, and 1-24th of a penny. Messrs. Samuel and Montagu exhibited a series of illustrations of the moneys of the greater part of the world, including the unit coin of each country, its multiples and subdivisions, both gold and silver.

The first Paper read was

ON THE EXPEDIENCY OF AT ONCE DECIMALISING ENGLISH MONEYS AND WEIGHTS.

By J. A. Franklin.

It is due to this distinguished auditory that I explain and bespeak indulgence for the somewhat fragmentary character of what I am about to read. When honoured with a request to treat this important subject here, I strung together materials considerably more abundant than can now be used, and there has been invited to the discussion certain writers who are at issue with me and with the Decimal Association, with which I have the honour to be connected. On their behalf it has been arranged that two other papers shall be read this evening, and, in order to afford every facility to them, I shall have to skip many parts of my paper; for leisure has not served to re-cast the whole satisfactorily, and I crave indulgence accordingly.

The principal consequence of these altered arrangements will be to throw into the shade many interesting features of the decimal subject as a whole, and to give prominence to our monetary system which it is proposed first to decimalise.

Permit me, then, to assume it proved that the irregular and capricious modes in which English moneys, weights, and measures are reckoned, whether upwards or downwards from any given denomination, are needlessly and painfully perplexing. In the school-room, wasting precious moments distastefully, and trenching upon opportunities all too limited for moral and mental training; in the market, preventing the poor man from distributing his small earnings intelligently and economically; in the warehouse and counting house, consuming costly labour, while the risks of error are increased manifold; and in the operations of international commerce, converting what might be the simplest arithmetical processes into problems difficult of solution, even by the initiated and the experienced.

Let us take as granted the reasons upon my notes for treating decimal or all-ten reckoning as the natural one—that of the ten fingers; and for considering metrical gradations other than decimal, to be primitive methods of artificial subdivision in the absence of natural instruments capable of separation or disintegration. It is time that the still later invention of decimal arithmetic, and the more manageable ten digits which are its proper instruments, should help us so to simplify and universalise the principles of metrology, of computation, and of accountancy, as that tables of money, weights, and measures of all kinds shall be superseded, and that quantities, dimensions, prices, &c., may become reciprocally commensurable at once, without any intermediate process or effort. With this object it is proposed, first, to convert our monetary notation from the irregular one of £ s. d. qr., pounds, twentieths, twelfths, fourths, into the symetrical or all-ten notation.

Even while our coins have been thus irregularly related to each other, the superior facilities of computing decimally have been so manifest, and the means of decimalising downwards from the £—, that is, converting sums of shillings, pence, and farthings, into tenths, hundredths, and thousandths of the £—so easy and convenient, that already in 1613, as mentioned by one of our greatest authorities on this subject, Professor de Morgan, a book was published teaching this simple and rapid process.

In glancing at the history of proposals since made, not merely to decimalize our moneys of account, but our actual coins of circulation, permit me to remind you that the decimal question has been already brought before your Society by my friend Mr. Miller, of the Bank of England, whose very able paper, read last session, traced the more important changes in our coinage, and gave many interesting details of the variance of weights, fineness, value, and nomenclature, through which certain coins had passed to their present names and standards. The inconvenience of our present involved system of coins, weights, and measures, with their several tables, rules, multiplicity of figures, and non-arithmetical notation were contrasted with the brevity and simplicity of the decimal, or all-ten system. The commercial importance and facility of a change to the latter were forcibly urged, more especially with regard to our coinage and accounts, and it was demonstrated that a decimal coinage is for us in no other way practicable than by the adoption of the pound as the chief unit or first coin of the decimal scale.

The decimalisation of our currency, as well as of our accounts, was advocated by Lord Wrottesley, in 1824; by Mr. Babbage, in his Economy of Manufactures, in 1832; by General Pasley, in 1834; by Professor de Morgan, in the Companion to the Almanack for 1841-48 and 53; by the

Commission for the Restoration of the Standards of Weight and Lineal Measure, appointed by Lord Monteagle, in 1838; by Dr. Bowring's move in the House of Commons in 1847, from which the first practical step in advance was taken by the issue of the florin, bearing on it the words ONE-TENTH OF A POUND; by the Parliamentary Committee, in 1853, of which Mr. Wm. Brown, the Honourable Member for South Lancashire, was chairman, a gentleman whose commercial experience might fairly entitle him to be considered a high authority for the change; and by the second commission of 1851, the distinguished members of which, in 1853, wrote to the Chancellor of the Exchequer, urging the completion of our decimal system of coins from the pound to the thousandth of the pound, and who in their report in 1854, felt it incumbent upon them, although the coinage did not form a part of the inquiry referred to them, again to enforce the importance of carrying into immediate effect a change in our coinage which would so much simplify all monetary calculations and accounts. Since then, and with such authority in their support, the Decimal Association has been formed. They have, in proof of the utility of their object, the evidence, not alone of men of science, accustomed to weigh every minutia of detail with the severity of mathematical exactitude, but the evidence of men of business and accounts—men of incessant practice in every branch of trade, commerce, and money—merchants having transactions with every portion of the globe, and as familiar as with the multiplication table with every slight variance in value of the manifold moneys of the world—manufacturers, paying weekly every variety of amount to every class of workmen, skilled and unskilled—shopkeepers, selling a vast aggregate in the smallest quantities of goods of ordinary consumption that can be sold to meet the wants of the poorest and least taught, and who have certainly a knowledge both of the utility of the change, and how it would be received by the masses of the people. Nor is this the entire concert of authority upon the subject. Schoolmasters, considering how much more easily arithmetic would be taught with decimal moneys, weights, and measures, have petitioned, praying Parliament to bring about the change—Chambers of Commerce and Commercial Associations, viewing its bearings not only on home business, but in rendering our weights, measures, and money more intelligible to our foreign associates in trade, have petitioned for the system—the Bank of England, a body which, standing at the head of the monetary world, may reasonably claim to be considered a sufficient authority as to every gain that would follow from, and every difficulty that can stand in the way of the change, have, under a matured conviction that decimal coinage and accounts would spare the waste of intelligence, save labour, ensure accuracy, and be, in short, a public boon, have contributed £100 to the funds of the Decimal Association—and upwards of 250 members of Parliament, who may be presumed to have some knowledge of the opinions of the people, and amongst whom are representatives of every principal seat of commerce and manufactures, have given their names as members of the Association, which proposes, as the first step, the decimalisation of our coinage, and holds it to be utterly impracticable that it can be decimalised in any other way than with the pound as the first coin of account.

Other modes of accomplishing the end have, however, been proposed, not, it is true, on any very important authority, nor have they met with any considerable support; but "their advocates are sufficiently pertinacious (it is said) to be obstructive."

All schemes heretofore propounded for the decimalisation of our English money belong to one or other of two categories—one which retains the £, the other which retains the penny. The two are obviously irreconcilable under any decimal system properly so called, for their relation to each other is 240:1, and that of the shilling to the penny is 12:1. Either the penny or the tenpenny unit would of necessity displace the £ as our principal money of account, together with the shilling, a fact which is virtually admitted by the proposal to substitute for the £ a coin of 100 pence (8s. 4d.) under various names.* On the other hand, the £ unit, if retained, requires nothing incompatible with any other unit proposed between itself and the shilling inclusive.

The question then lies virtually between the £ and the penny, and it is not difficult to demonstrate that neither the penny unit, nor any other unit based upon the penny, could meet our obvious requirements, whether of domestic trade or of international commerce.

Since a new system cannot displace the old one, as it were, by sleight of hand, there must be due consideration for long-established habits, both of computation and of estimation by *£. s. d. qr.* The whole stock of ideas and facts concerning monetary value possessed by the present generation, and every existing record of finance, values, prices, &c., accumulated in the past for the use of the future, render it indispensable, not alone that values expressed by the old system should be convertible into any new notation which may be adopted (as also the converse) by the simplest possible operation, but that both notations should be reciprocally commensurable almost at a glance.

When sums recorded in *£. s. d. qr.* have to be expressed in the notation of the decimalised pound, *i.e.*, pounds and mils, we find the most important item, the pounds, already decimalised to hand, so as not to require any change. The three denominations (fractions of the pound) which remain, suggest their own decimal equivalents at once to all classes (and they are numerous) already accustomed to make monetary calculations decimally; for a little practice is alone needful, in order to convert or read off those equivalents at sight.†

On the other hand, if sums recorded in *£. s. d. qr.* have to be expressed by the system of the tenpenny and its mils, or of the tenpenny and hundredths of a penny, it will rarely happen but that every integer of the original sum will have to be altered. The pounds must be multiplied by 24; the shillings by 12; the remaining pence must be added to the last product, and the farthings represented by two additional places of figures next following. Both systems have three places of decimals after the unit, and both are susceptible of still further subdivision, if desired; but, *per contra*, while a pound unit needs but a single integer, that same value, expressed in tenpences, will always need an additional integer; and, in all cases beyond £4, two additional integers must be written down.

Let the most expert arithmetician endeavour to compare and estimate, side by side, sums of magnitude expressed in all three notations; and also ascertain what impressions are produced upon any eye or ear educated in the old monetary notation, by quotations of such sums in the tenpenny notation. These last, before they can become commensurable with values otherwise expressed, must be divided throughout by 12, and 20, or else by 240; whereas, the habit has already long prevailed of comparing "at sight" shillings, pence, and farthings, the only items not identical as residual fragments of £1, with like values expressed in thousandths of £1.‡

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* Mr. Minasi, a candid advocate of the penny, writing under the motto "Penny Wise and Pound Foolish," says that the penny as a unit would "extinguish" the £.

† I do not, of course, overlook the fact, that the mathematical equivalent for 1-960th of £1, cannot be expressed in thousandths of £1, for that it is which constitutes the occasion for a reformed currency. But the discrepancy between a farthing and a mil is only 1-100th of a penny, and at 25 mils per sixpence even that is compensated.

‡ This habit, as taught in our best school arithmetics, under the name of "reduction by inspection," has been found to save both time and labour, even though the results have had to be reconverted into shillings, pence, and farthings. Hence, practice is already in advance of theory, in the harmonising of English money (like that of other countries) with "the all-ten reckoning," or simple method of whole numbers only, counted throughout by tens.

I propose here, in order to save the time of the meeting, to retrench arguments and examples in support of the £ *versus* the penny, as "a schoolboy's question." If those who follow me will also agree to defer that question to a practical issue—not upon problems specifically devised on one side to embarrass the other, but to be tried thus: To two classes of free school boys let us dictate an impartially selected score of arithmetical questions. One class shall work by the £ and mil, the other by the tenpenny, and the auditory shall judge between them the two systems.

The principal advocates for the penny at the expense of the pound, are—

1st. Those who propose to adopt a penny as the unit, decimalising upwards to 10 pence, 100 pence, &c.

2nd. Those who adopt a tenpenny unit, decimalising downwards to the single penny and the 10th of a penny.

3rd. Those who adopt a farthing as the unit, decimalising upwards to 10 farthings, 2½d.; 100 farthings, 2s. 1d.; 1000 farthings, £1 0s. 10d.

It will be observed, that whether tenpenny or penny be the unit, there at present exists no coin which can be represented by unity in the next rank below the penny; so that, in either case, the simple decimal chain is broken at this stage. On the other hand, where the farthing is the starting point, every existing coin preserves its value undisturbed, but nothing except the farthing itself retains its specific rank in accountancy.

New gold coins, whether of 100 pence or 1000 farthings, would lead to endless mistakes and confusions, unless all our existing gold coin were called in and demonetised.

The small differences in size and weight of the £1 0s. 10d. from the £; of the 8s. 4d. from the ½ sovereign, and of the tenpence from the shilling, have suggested to the advocates of the new coin a necessity to make it oval as a means of being readily distinguished. The very suggestion, strange as it is, is significant.

Our penny-piece has been spoken of as if it were one of the bulwarks of our ancient institutions, another Magna Charta. The piece we have is a thing of yesterday. Etymologically, as some hold, it signifies money in general, after the Danish word *penge*. There used to be a penny of two pence; and Henry III. coined a penny of gold, a 20 pence token. The Anglo-Saxon penny was assumed to be the 240th of a lb. of silver, a penny piece of a pennyweight. But both weight and value fluctuated considerably, eventually dwindling until it became too small for convenient circulation. At the date of Charles I., when the pound itself was a silver coin, the penny had long become too small to be useful, and small amounts were then made up of copper tokens. English copper-money is of comparatively recent date. Ruding says, that Charles II. first issued copper-money, properly so called, but that it does not appear to have been made current. The first copper penny of the realm as a legal tender, was struck at Birmingham, in 1797, and is the large rimmed penny now current, weighing exactly an ounce avoirdupois, as a ready popular test of weighed commodities. The more recent pennies are tokens, 24 to the lb., about half their nominal value, and a legal tender to twelve pence only. That sum is represented by another token, the silver shilling, current also for something more than its intrinsic value, and in turn a legal tender to 40 shillings only; whereas the sovereign is not a token current for more than its worth, but a legal tender to unlimited amount. In fact, under the law of 1816, passed at the instance of Lord Liverpool, the gold pound, long constituting the unit of our monetary system, became the sole representative of our national standard of value.

Let us trace back the £ sterling of gold to its origin. The name "sovereign" was first given to the double-royal, stamped with the effigy of Henry VII. in sovereign robes, and made current for 20 shillings. Henry VIII. expressly declared it a "pound-sovereign." James I. constituted it the chief coin in our system, called it a unit, and stamped it with the Roman numerals, XX. Hence the three significant names, pound, sovereign, and unit, applied to the chief coin of our system, came to be used. Under Charles I. this unit was called a guinea, only because of the gold coming from the Guinea coast. The guinea, somewhat later, got to bear a fluctuating premium over 20 silver shillings, until, on the advice of Sir Isaac Newton, Master of the Mint under George I., it was declared a representative of 21s. After this we had a double standard, silver being payable by tale to £25, and to any greater sum at Mint price. Thus it continued until the sagacity of Lord Liverpool and his school averted the evils of a double standard; and in 1816 the sovereign, in its present shape, was again made identical with the pound of account, and silver coin became mere tokens, as at present.

This brief historical parallel between the penny and the pound, shows that the penny has not been the unit of a monetary system for many centuries, whereas the pound unit, expressly so called, which it is pretended that a mere token may extinguish, has occupied its position since the time when Great Britain took her commercial position among the nations of the earth.

By the kind assistance of Mr. Webster, the numismatist, I am able to present a diagram, showing the coinage of all kinds, in relation to £ s. d. qr., as issued from the time of Henry VII. to Victoria, inclusive.

Mr. Webster has also obligingly brought down a valuable collection of pennies, extending over 1000 years, shewing their gradual diminution in weight of silver, and exemplifying in another series the origin and progress of our copper coinage, as I have just described.

I regret to have failed in making up a historical series of the gold pound or sovereign. The silver £ and 10s. pieces of Charles I., are in Mr. Webster's case.

The Coinage: Pounds, Shillings, Pence, and Farthings issued from Henry VII. to Victoria, inclusive.

	GOLD.	
The £. Pieces of	....	5, 3, 2, $1\frac{1}{2}$, 1, $\frac{3}{4}$, $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{8}$.
21 shillings do.	......	5, 2, 1, $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$.
	SILVER.	
The £ do.	......	1, $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$, $\frac{1}{10}$.
The Shilling do.	......	1, $\frac{3}{4}$, $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{6}$, $\frac{1}{8}$.
The Penny do.	......	1, $\frac{3}{4}$, $\frac{1}{2}$, $\frac{1}{4}$.
	COPPER.	
(Coins) do.	......	2, 1, $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$, $\frac{1}{12}$, $\frac{1}{16}$, $\frac{1}{24}$.
(Royal Tokens) do.	....	$\frac{1}{2}$, $\frac{1}{4}$.
Tin (Copper-plug) do.	...	$\frac{1}{2}$, $\frac{1}{4}$.

NOTE.—The Silver pieces below 3d. have been Maunday money during the later reigns.

But how is it that our present penny piece is supposed to have so firm a hold upon the popular regard? It will generally be found, that whatever the unit of any monetary system, the public will select particular coins or values, as standards of convenient comparison. In our own system, it is indisputable that we think and speak of large values by the £; of prices from, say £4 downwards by shillings, as 80s. or 72s.; and from 1½ shilling downwards by pence, as 18d., 15d., &c. The penny is a standard of petty traffic, not because it is the 12th of a shilling, but because, like the French sous or the Dutch stiver, both superseded coins, it is the one material point, round which as a nucleus, such things as the penny roll, the pennyworth of apples, and other cheap penn'orths can alone range themselves. Considering how very recent a thing is our penny-piece, and the alteration of values at this day as compared with older times, it is not unlikely that a coin or token 10 to the shilling in place of 12, would become a still more popular and convenient standard for petty traffic.

We have been warned of the danger to our standard of value from the pretensions of the tenpenny unit.

Mr. Yates, who received the Telford medal from the Institution of Civil Engineers for his paper read in their last session on the French system of coins, weights, and measures, says explicitly, when advocating that a new coin of tenpence shall supplant the pound, that

"Perhaps it would be indispensable to adopt silver as the standard of value, * * silver coins would cease to be tokens, * * the gold coinage ought to be called in, * * and reissued at its real value. * * The value of a sovereign, and, consequently of a half-sovereign, should be declared by law or by a proclamation; * * they would probably, under the altered circumstances, be tokens; in this respect taking the place of silver."

And the same gentleman, who has more laboriously laboured at the question than any other advocate of his system, and who has left unsaid nothing that can be said for it, admitted in a paper read before the statistical section of the British Association at Liverpool, the necessity, if his plan were adopted, for the issue of entirely new coinage, and proposed the immediate recal of every gold and silver coin at present in circulation, and the issue of a paper money, beginning with tenpenny notes, to fill up the interim until the production of the new coins.

Mr. Theodore Rathbone, not the eminent merchant of that name, but the gentleman whose name has been given to the tenpenny scheme because of his prominence in its advocacy, read another paper upon it, at the last Liverpool meeting of the British Association. Among his manifold writings I find this expression:—

"When Great Britain has everywhere adopted the *ten pence* or twenty-fourth of her pound sterling, as the principal denomination in all her accounts, can it be doubted that the very slight adjustment required to render this coin the European franc or French tenpence, its double, the true old florin, and its quintuple the dollar, corresponding in weight and standard fineness of metal—would very soon follow?"—

In like manner has written the late Mr. Laurie and other gentlemen smitten with the supposed correspondence of an English tenpenny with the coins of other countries. I now quote from the paper read by Mr. Minasi to the Statistical Society:

"It will be readily observed, that great facilities would be afforded to travellers and others in more easily effecting exchange operations. The half-imperial would represent the United States *dollar*, and the *hard dollar* of Spain, and the South American States; the *argent* would equally approximate to the French and Belgian *francs* and other foreign coins of the same value; while the Dutch *guilder* and the *florin* of the Zollverein, &c., would be indicated by two argents. For this and other reasons, it would doubtless be found convenient to coin such pieces as

	s.	d.
The *half imperial* or *dollar*—value in present money	4	2
Four-argent piece	3	4
Two-argent piece, or *guilder*	1	8
Half-argent	0	5

* * * * * * *

A *Victoria*, equal to 10 *imperials*, or 1,000d. answering to the *double eagle* of the United States, would likewise be found useful."

Now, I have studiously avoided profitless discussion about names for new pieces; but surely those who join in disclaiming the title of florin for our two-shilling piece must be ignorant that Half-imperial is a title already appropriated by the five-rouble piece of gold, worth about 16s. 4d., and I am at loss to understand how *argent* is found more English than mil—(mite would do as well). I have constructed tables showing the discrepancies in weight and value of the pieces which Mr. Minasi and others propose shall represent each other.

Discrepancies in Silver Coins reputed to be Equivalents.

Coin.	Country.	Grs. of Fine Silver.
Dollars.	Mexico	376·22
„	Peru	375·68
„	Spain (Pillar)	372·66
„	United States, 1792	370·93
„	„ 1834	371·25
„	„ 1853	345 55
„	German Convention	360·83
„	Prussia	255·82
„	Denmark	191·12
„	Hayti	110·96
Francs	France	69·43
„	Belgium	69·29
10 pence	England	67·27
5 francs	France	347·17
50 pence	England	336·36
Ducat	Naples	295·00
40 pence	England	269·09
Rouble	Russia	277·33
Florins	Austria	180·41
„	Holland (old)	148·01
„	„ (new)	145·76
2 francs	France	138·86
Florin	England	161·45
Rupee	India	165·00

Discrepancies in Gold Coins reputed to be Equivalents.

Coin.	Country.	Values by London Trade Experience.
DUCATS	Augsburg	£0·437
„	Austria (1762)	0·441
„	„ (1809-34)	0·460
„	„ (1838)	0·464
„	„ „	0·469
„	Hungary	0·468
„	Bavaria	0·467
„	Saxony	0·466
„	Baden	0·464
„	Sweden	0·459
3 Ducats	Sicily	0·514
THE SOVEREIGN		£1·
24 Francs		0·949
5 Dollars, (Spain) f.		0·998
Ditto (United States)		1·026

Disparities in Gold Coins mistaken for Equivalents.

		Contents in Grains Fine Gold.
U.S. Eagle		231·897
5 × 8s. 4d. British		235 418
THE SOVEREIGN		113·000
24 Francs	prescribed weight	107·528
	Bk. of England experience	107·339
U.S. ½ Eagle, 5 dols	prescribed weight	116·100
	Bk. of England experience	115·948

The tables should tell their own tale. In his tract "A Word in Behalf of the Poor Man's Penny," Mr. Minasi classes the Russian *bank* rouble among the coins to be approximated by the *argent* or tenpence, and the Neapolitan *ducat* as approximating 4 argents.

But Mr. Rathbone proposes what he calls "slight adjustment" between these unlike values. What adjustment would be possible between a Russian bank rouble and the 24th of a sovereign,—the rouble being a mere paper promise-to-pay by that amiable potentate, the Czar?

Between the tenpenny and the true franc, taking the latter as a basis, adjustment would, I find, involve a buying up (by the Mint) of our silver coinage now in circulation, at a cost of about 6s. to 6s. 6d. per ounce, and a selling to all the world of the proposed new coinage, at about 5s. per ounce only :—below the market price, even at present quotations, of the mere material! So that the new coin would be melted down or shipped off as fast as issued, as, on the authority of the Director of their Mint, has been the case from the United States, which therefore now coin their one dollar of gold; and as is still the case from France, a fact notorious in the bullion market; 20 francs in silver having recently commanded a premium over 20 francs in gold.

The establishment of an English tenpenny piece as our chief decimal coin of account would not, therefore, for any practical purpose, bring us one atom nearer an equality with French and American coins of decimal account than now.

"The delusions respecting the homogeneity, correspondence, or harmony of French, Dutch, American, and other coins," says Mr. Miller, "is manifest. Who is to change, as a means of 'adjustment?' Is France to change her franc? If so, let it be broadly proposed, and let us have our nearest neighbour's opinion on the subject. Is America to give up the dollar, and adopt the five-franc piece? Or is she to make it fifty English pence first, by way of a beginning? The truth is, 'slight adjustment' signifies neither one nor the other. It signifies, if it signifies anything, that England should, at some time or other, abandon every one of her present measures of value, together with every single element whereby to connect the monetary statistics of the past with those of the future; and that we should prepare to do all this by the issue of a tenpenny piece! When we arrive at this point,—wherein does the tenpenny plan differ from Mr. Yates's, that we should adopt the French *systeme métrique* entire, except that it is less candid and straightforward?"

The public was, however, for a time misled into the belief that the proposed tenpenny piece and the French franc were to be identical, because certain advocates of the tenpenny piece were pleased to call their coin a franc; a confusion that was got rid of only when the actual value of the French franc was shown to differ considerably from either 10d. or £$\frac{1}{24}$.

How can those who profess to respect our standard of value, expect to accomplish a useful object by bringing about a resemblance or correspondence—not between monetary standards or fixed units themselves—but between mere tokens or counters for different units? Such tokens are our own shillings and pence, whose intrinsic value is made as much less than their current value as leaves no sufficient temptation to private fabricators. That such is becoming the case of the American silver coinage, as towards its gold, ought to be manifest. The U.S. whole dollar of silver still current contains 17dwts. 4¼grs., that is 1·16$\frac{8}{165}$ dols. per oz. The U.S. mints have bought up, since Dec. 1, 1853, as many as they could get, paying 1·21 dol. per ounce; and since 1st July last, the chief mint at Philadelphia offers as much as 1·22½ dols.—so buying them back at a loss; the payment being made in gold or in new silver tokens of 16dwts. per dollar, *i.e.* at the rate of 1·25 dols. per ounce. This margin, 2½ cents per ounce, is clearly insufficient, and we may expect a still further change.

But it is said we should be compensated for the abandonment of the pound, by the facility for the calculation of international exchanges.

By long established usage, most exchanges between Great Britain and other countries are expressed very naturally by the number of small moneys of account which are to be given for a large money of account. Now, to our manifest convenience, the largest of such is our pound. Moreover, our pound sterling has long been an inflexible standard or measure of all other values, including that of silver; whereas, America is only now gravitating to the same simple system, (having made two important steps towards it, as just explained), and the best financiers in France incline in the same direction. The pound sterling signifies 113 grains of fine gold coined in a prescribed manner; and that being the one fixed point of the largest commercial system in the world, it were gratuitous folly in us to sink suddenly to an inferior unit: one, moreover, which, as a coin, is incapable of carrying its assumed value, and must remain a mere token of silver,—its weight and intrinsic value varying with the market.*

The comparative tables of coins before given show the ratio of bullion to bullion. It is obvious that, for gold, the ratio progresses in inverse order to that of silver; and, so far as in exchange operations one country estimates the actual coinage of another according to the fine bullion which can be extracted from it, so far is it altogether indifferent whether the coins of one "harmonise" or not with those of another. It is a delusion to suppose that exchange computations can be facilitated by merely approximating the still not identical units of account, (much less of circulation,) just, for instance, as it would be a delusion to suppose the ratio 1000 : 1001, a more simple proportion than 1 : 10; or $\frac{1000}{1001}$ a more tractable factor than $\frac{1}{10}$.

It cannot be too much insisted upon that the closer the approximation, stopping short of complete equality, the greater the risk of error and confusion.

But, say the tenpenny advocates, overwhelmed by these disparities, we will be content for the present with no further novelty than a new English token, twenty-four to the pound; that will suffice for the decimalisation of our monetary system, and qualify us to negotiate for closer approximations with other decimal systems. In any case, say they, we can have the boon of decimal accounts at once. Surely these gentlemen forget that Ireland had a tenpenny and half-tenpenny coin for several years, issued by the Bank of Ireland, made a legal tender for revenue, &c., and protected by law against imitations. If, as assumed, a tenpenny piece would facilitate the keeping of decimal accounts at everybody's pleasure, how is it that, despite the abundance of tenpennies, fivepennies, &c., and notwithstanding that the advantages of decimal accounts, proclaimed long before, had become obvious enough, yet people kept accounts by £ s. d., and not decimally? A tenpence was insufficient without a hundred-pence piece, and nobody then attempted to extinguish the pound and the shilling.

If, however, a "five" had existed, that is, a token of 5 mils or mites, 5 to the sixpenny piece, 10 to the shilling, 20 to the tenth of a pound, 200 to the pound, then the public accounts, those of bankers, and of all concerns which do not in accounts carry out halfpence, or pay and receive less than a penny piece, might have been kept decimally at once.

Thus, you perceive, that the tenpenny device has had its chance—the only kind of one needful to its success—according to the loudest opinion pronounced in its favour, whereas the decimalised pound, already long and firmly established for purposes of computation, still waits for the link connecting computations, accounts, payments, and exchanges, in one harmonious chain.

On the contrary, the tenpenny unit, as a "harmonised" coin, must lead to confusion; as a novel money of account, to complexity; and, as an arbitrage factor, to capricious changes which would render the past history of international finance with difficulty intelligible?

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* I may here remark how expedient it is that we, like other nations, should make the unit of our monetary system, either itself the standard of value, or, at least, a fixed quantity of the metal which *is* that standard.

Eminent merchants, engaged in daily exchange operations, have already pronounced for the decimalised pound, which many of them employ in their computations. It is now, and always has been, free to them to make their computations, and even to record them, on the penny basis; and it may be said, advisedly, that they only abstain from a demonstration against that basis being adopted, because they cannot conceive it possible that it would, even for a moment, be seriously entertained.

There remains one notion, which has been mixed up with the decimal question inconveniently, and in a manner to obstruct all progress,—it is the notion of universal standards of value, weights, measures, &c., throughout the commercial world; a notion exceedingly captivating, like that of universal language, &c.

The aspiration for universal standards, like that which animates the Peace Society, although unlikely to be attained this side the Messianic era, claims sympathy in so far as it affords a counterpoise to extreme tendencies in the opposite direction, always too powerful. Just as the efforts of the Peace propaganda may, under Providence, promote some middle course, wherein armies now arrayed for mutual destruction, may co-operate as an armed police, the peace officers of society at large, so may there be imagined some common system of account internationally; not a material Procrustean method of enforced uniformity between all things, in all places, and at all times; but, adopting an illustration familiar to my City friends, a sort of clearing-house method, devised to accommodate as many distinct and independent systems as practicable. What any bank of deposit is to its own customers *inter se* might some one State bank be to other State banks.

A Bank of England note is a deposit receipt for bullion, returnable in sovereigns. In another shape it might represent mere bullion, deposited for foreign account, and returnable in any form.

Desiring, then, to speak with the utmost respect of those who look forward to such assimilations of all the nations of the earth, let us ask, are we to stand still until this desirable time be ripe? are we to cling to a system of coins, weights, and measures, that retards the instruction of the young, and is a puzzle to all who have dealings with us, until some scheme be hit upon that all will recognise as perfect—some coin unto which, with all its divisions and multiples, every nation will at once merge its existing moneys? To say the least of it, this field of assimilation is a very wide one. Almost every country has its peculiar moneys; the one point of concert with the majority is, that they have decimal coins. Surely, then, *our* first step to an approximation with other nations, must be to adopt the decimal system.* Other countries are changing, or seem likely to change, their standards of value, or to make important alterations in their coins, but not one of them proposes to go back from the decimal system, although many are coming to our plan of a convenient unit, reducing all below it to aliquot tokens. We have but little alteration to make in order to arrive at a decimal system—no important coin to call in or displace from its column of account. We can decimalise from the pound as it stands, without putting ourselves in a worse position to adopt anything better, if it should be found hereafter.

These beautiful diagrams, which illustrate the fluctuating relations to each other of the precious metals, I owe to my ingenious young friend, Mr. N. Joseph. They demonstrate not alone serious *ex post facto* alterations of monetary contracts, but also habitual departures from mint regulations, even when altered. These discrepancies are, probably, to some small extent, attributable to the plan of double, or alternative standards. The following tables explain these diagrams:—

Table showing the quantities of Fine Gold and of Fine Silver in the 20 *shillings or the* £1 *sterling, from the Conquest to* 1855, *according to the Mint Indentures, and also the proportionate quantities found in each by Assay.*

A.D.	Anno Regni.	GOLD.	SILVER.	Proportionate quantity of Fine Silver to one of Fine Gold found by Assay.
		Number of Grains of Fine Gold in the pound stg.	Number of Grains of Fine Silver in the pound stg.	
1066	William I.		4995·000	
1257	Henry III.	499·500	ditto	10
1280	8 Edward I.		ditto	
1344	18 Edward III.	407·990	4933·333	12·091
1349	23 ,, ...	383·705	4440·000	11·571
1356	30 ,, ...	358·125	3996·000	11·558
1401	3 Henry IV.	358·125	ditto	11·158
1421	9 Henry V.	322·312	3330·000	10·331
1464	4 Edward IV.	257·850	2664·000	ditto
1465	5 ,, ...	238·750	ditto	11·158
1470	,, ...	ditto	ditto	ditto
1482	22 Edward IV.	ditto	ditto	ditto
1509	1 Henry VIII.	ditto	ditto	ditto
1527	18 ,, ...	210·149	2368·000	11·268
1543	34 ,, ...	191·666	2000·000	10·434
1545	36 ,, ...	176·000	1200·000	6·818
1546	37 ,, ...	160·000	800·000	5·000
1547	1 Edward VI.	ditto	ditto	ditto
1549	3 ,, ...	155·294	ditto	5·151
1551	5 ,, ...		400·000	—
—		160·000	1760·000	11·000
1552	6 Edward VI.	ditto	1768·000	11·050
1553	1 Mary	159·166	1760·000	11·057
1560	2 Elizabeth	160·000	1776·000	11·100
1600	43 ,, ...	157·612	1718·709	10·904
1604	2 James I.	141·935	ditto	12·109
1626	2 Charles I	128·780	ditto	13·346
1666	18 Charles II.	118·651	ditto	14·485
1717	3 George I.	113·001	ditto	15·209
1816	56 George III.	113·001	1614·545	14·287

The relative value of Gold and Silver, variable in all countries, indicated by the number of ounces of Silver, equivalent to 1 *ounce of Gold.*

	A.D 1641. Mr. Page.	A.D. 1780. Mr. Page.	A.D. 1818. Dr. Kelly.	A.D. 1855. Annuaire Bureau des Longitudes.
Amsterdam .		14·885	15·8735	
Hamburgh .	12·	14·171	15·	
Paris .	13·5	14·581	15·5	15·5
Madrid .	13·33	15·636	16·	15·75
Lisbon .			13·56	15·48
Petersburgh.			15·	15·
Brussels .			15·5	15·79 (?)
Venice .		14·779	15·	
Genoa .		14·915	15·34	
United States			15·	Error
Bengal .			14·587	
Madras .			13·872	
Bombay .			15·	
China .			14·25	
Leghorn .		14·510	14·65	
Naples .			15·21	

The ten-penny and penny advocates demand our attention to France and the United States. Well, which of their coins are we to adopt with any certainty that it shall continue their chief money of account. The accomplished director of the U.S. mint, Mr. Snowden, says, in his report for 1853:—

"The depreciation of the standard weight of the half-dollar and lower denominations of silver coins, authorised by the Act of 3rd March, 1853, has been attended with good results. * * * The new issue has reached the sum of 8,654,161 dollars, which is a larger amount than we have struck during the five years preceding. * * * The appreciation of silver made the alteration necessary. * * * In England, since 1816, a silver currency has been maintained by similar means. * * * There will constantly be a varying per centage of fluctuation (in the relative values of gold and silver) and this will sometimes be so great as to compel a legal modification of standards. * * * Although our own standard of silver has so lately been changed to suit the market, there is reason to fear that the reduction of weight was not sufficient, and that another re-coinage, at no distant date, may become necessary."

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* I place in the hands of the chairman a table, kindly prepared by Mr. Radston, showing that two-thirds of the population of the world now have decimal money.

Other American writers foresee the abandonment of a silver standard for the eagle or half-eagle of gold.

Who can answer that France is not likely to alter her silver franc ere long, observing, 1st, the constant drain upon her silver coinage for the East; 2nd, the recent issue of gold 5-franc pieces to supply their place; and, 3rd, the announcement of a 4-Napoleon or 100 franc piece of gold—which would be available as a new unit of decimal account, if the ½-Napoleon be not large enough.—Witness the sagacious notes upon the Compte Annual of the Bank of France for 1853, reviewed in the *Revue des Deux Mondes* :—

> "The weight of the (French) silver piece must be reduced as in the United States, without which that description of coin must inevitably be exported to the last franc; and secondly, it will be necessary to take the monetary unit in that metal likely to circulate in greatest abundance—*i.e.*, to settle that the franc for the future shall contain a certain weight of gold if gold is destined ultimately to predominate."

But, it may be asserted I am leaving out of sight that it is not merely proposed we should adopt the moneys of another state, but that a convention should be held for the settlement of international coins. Well, you have an instance before you.

There is here a collection of German coins, issued under the convention of 1838. There have been, according to Messrs. Eckfeldt and Du Bois, several such conventions; for instance, the diet of Augsburgh, in 1559, under which the well-known ducat, *called* a "universal coin" was regulated. It exists yet, unlike from different mints, still a mere token, and occasionally at a premium against silver throughout its history. There is a later and rival ducat, originating in 1740. At Leipsic, in 1690, there was a convention for the silver money of the Northern States of Germany,—another in 1753—another in 1837, leading to the last, in Dresden, in 1838. That, after all, this convention has been partial and inefficient, seems to be admitted; notwithstanding the urgent occasion for some such correspondence, (a striking illustration of which was furnished to me by the courtesy of the Austrian consulate). While drawing up this paper, I saw it stated from Vienna—where a congress had been sitting since last November, to improve the convention of 1838, that only Austria, Bavaria, Frankfort, and Russia, (qy. Prussia), had sent representatives, and that it will have separated, not only without coming to any result, but convinced of the impossibility of establishing unity between the moneys of Germany. I quote from a well-informed journal, *l'Independence Belge*. If the German States, with a common language, a federal union, and still more a Zollverein, necessitating a keeping of accounts against each other, cannot maintain old treaties for a unity of monetary regulations, why should we be asked to wait until still greater complexities shall have been removed, before adopting the obviously useful expedient of decimalizing that which at least is under our control?

For the large and interesting assortment of the monies of the world, arranged in series, which lies upon the table, I am indebted to Messrs. Samuel and Montagu, the bullion merchants of Cornhill. It embraces not alone the gold and silver coins to which my paper and tables make reference, but almost everything that can assist this investigation, including many monetary curiosities seldom brought together.

The only other suggestion for international coin which occurs to me, is the possibility of a modern coin, like the Spanish dollar of old, taking the rank and acquiring the authority of that piece. Suppose all were agreed as to whether the piece shall be gold or silver, there would still remain the question, what mint shall strike the new piece? Divers mints, diverse coins—is the teaching of all history. The United States mint charges ½ per cent. for expenses; France, fr. 6·70 per kilo. for gold, fr. 1·50 for silver; Great Britain, since Charles II., for gold, absolutely nothing. Assuming that we shall henceforward have credit for the regulation weight and fineness of our gold coin, why shall we, on the scale of the last two or three years, continue to supply other countries with coins made out of their own materials gratis, and at an expense to us which was formerly estimated at 9s. 2d. per cent.? There are gentlemen present who can tell you the enormous scale on which this losing concern has been carried on at our mint. In some other countries the sovereign is a legal tender. Even in the United States' custom-house, the sovereign, which under their old ratio of gold to silver was very equitably received at 4 dols. 44 cts. is now accepted at 4 dols. 84 cts.—a fair approximation to the theoretical equivalent which I estimate at 4 dols. 86 cents. and a fraction; whereas their mint authorities, weighing large quantities, and assaying the melted mass, show that 4 dols. 84 cents. is the average product. Canada, in order to get a decimal coinage, loses more than ½ per cent. when she exchanges the sovereign in the United States for 4 dols. 84 cents. That the sovereign is being so extensively disseminated throughout the world, is only another argument against its extinction, and for its decimalization.

But, suppose this idea of international moneys realised, how would it work?

Let us, for the sake of illustration, assume a pair of transactions between London and Paris. A London merchant ships to order of a Paris correspondent, goods (invoiced, of course in English money), total, say £100. A Paris merchant, at the same time, executes a London order to the extent of 2,500 francs, as per invoice. Now 25 francs per £1 is an arbitrary or fixed rate of exchange, called in the market "par," though not really par in any sense. To such extent as the Paris claim will pay off the London claim, say at 25 francs per £1, there is no occasion for transmission across the Channel either of coin, bullion, or any other like representative of money. Now such is virtually the case with respect to international trade generally, and money, real tangible specie, plays a very inconsiderable part even in adjusting the comparatively small balances which remain between other imports and exports. Suppose, however, that the London merchant is reduced to the clumsy expedient of remitting sovereigns to Paris, sufficient there to sell for 2,500 francs, wherewith to pay his debt; and that the Paris merchant, ignorant alike of the cross transaction, remits to London French money sufficient there to sell for £100, wherewith to pay his debt. The following are the elements which seem to me as necessary to be taken into account:—

1. The cost of packing, freight, insurance, shipping charges.

2. The cost of entry, dues, agency, &c., at place of destination.

3. The deficiency between the value according to the Mint regulations at home and the actual products abroad, *e.g.* remedy or margin for weight; remedy or margin for fineness; loss by dirt; loss by wear of coin; turn of balance.

4. The brassage, mint-charge, or other analogous difference.

5. Loss of interest pending the transaction, and risks not otherwise covered.

Although the details of these several charges, as between several countries, lie before me, I will not occupy time in reading them. In round numbers, the conveyance and attendant charges from London to Paris is ½ per cent. But sovereigns, claiming to be 22 carats, or 916⅔ fine, have been treated as 915 fine only; a fact scarcely to be wondered at when we hear that before the administration of the Mint by Sir John Herschel, the requirement was not to make the coin of 11-12ths fine absolutely, but according to a certain trial plate, with a margin of allowance. Our own

Bank of England does not pay more than 77s. 6½d. per oz. for cut sovereigns, although its price for bars (11-12ths) is 77s. 9d., the legal rate.* Then there is the French Mint deduction of 6·70 francs per kilo. augmented to about ⅓ per cent. by the variable delay at the mint. Estimate the total of these and like deductions at 1 per cent, and it results that £101 must be remitted in order to pay £100. On the other hand, if like deductions had to be submitted to on this side here there would be a like loss in order to pay 2,500 francs, showing an aggregate difference of 2 per cent. In practice, these aggregate differences need not be submitted to, because the debtor to Paris in London pays the London claimant upon Paris at some rate agreed upon, as already stated. The rate to be allowed in francs for the £, depends upon the balance of claims upon, or countervailing obligations to, each country severally at the moment and at the place of settlement. Be it observed, that while the par of exchange for gold, bullion against bullion, based upon the Mint regulations of France and England severally, is fr. 25·22155 per £ here, and fr. 25·2079 per £ in Paris, the oscillations of the rate of exchange have been occasionally much greater than 2 per cent. The ability to procure silver in France for a small premium, silver saleable here for still more than the same nominal amount in gold, is another and important element of calculation. Suffice it to shew that the balance of trade between two countries, which can be adjusted in so many other ways, say by national funds, shares, credits, &c., &c., is rarely adjusted by remittance of coin, even the coin of a third country treated as mere merchandise, so that the part played by the precious metals in the interchange is principally in the shape of bullion, generally cast into ingots.† It has been already attempted to spare the expense of coinage and the deteriorations of its wear and tear, by casting ingots of attested weight and fineness; and even by striking disks of gold and silver of size and weight adapted to convenient circulation. At the instance of Mr. D. Ricardo, the Mint once made golden ingots of 60 ounces; but I hear that the Bank got rid of 13 only out of 2,028, and melted down the rest.‡ Nay, at this present moment, as I am enabled to ascertain by the courtesy of the Consulate here, the United States' Mint charge for coining, or brassage, having been raised to ½ per cent. for gold, and the coinage of the new silver tokens for private depositors having been discontinued altogether, the Mints of the United States are authorised to cast bars or ingots from 10 oz. upwards, and to make and stamp disks of 1, 2, 3, 4, and 5 oz. of standard gold or silver, designating or attesting the weight and fineness in either case, and not charging the depositor more than the actual cost of operations. What has been the success of this experiment, made obviously for the purposes of international commerce? The bars or ingots reach this country in abundance, but the Bank and the Mint do not recognise the official stamps—probably because the ingots pass through private hands; so that all the expense incurred before importation is thrown away. As to the disks, although the law which gives the privilege is nearly two years old, I cannot find any one here who has seen a single specimen. A shoe, or Chinese ingot of gold, stamped all over, was submitted to me the other day, and by me exhibited at the Bank, and to the Master of the Mint. The mistrust of its stamps and attestations was justified by the result—the assay was inferior, and the touch would have been no sufficient test, for John Chinaman had probably pickled it, that is, bitten out the alloy externally by means of nitric acid.

Clearly, therefore, the work before us is to decimalize our own coins. We have nothing to gain by complicating the process from any fancied regard to foreign moneys. In short, we have no practical mode of proceeding but to take the pound as it stands.

An intelligent French *banquier* of large experience, and conscious of all the merits of the sytème métrique, tells me that all he can expect is, that we will decimalise our ancient standards, praying us not to delay what is really practicable and desirable by grasping at improbabilites.

Here is a table showing the history of French money, extending over 1000 years:—

Table showing the Progressive Alterations of the French Standards of Value.

Years.	Value of Livre in the Current Money of 1789.		
	Liv.	Sols.	Den.
800 to 1103	78	17	0
1103 ,, 1180	18	13	8
1180 ,, 1226	19	18	4⅘
1226 ,, 1314	18	3	5
1314 ,, 1322	17	3	5
1322 ,, 1350	14	11	10
1350 ,, 1364	9	19	2⅔
1364 ,, 1380	9	9	8
1380 ,, 1422	7	2	3
1422 ,, 1461	5	13	9
1461 ,, 1483	4	19	7
1483 ,, 1498	4	10	7
1498 ,, 1515	3	19	8
1515 ,, 1547	3	11	2
1547 ,, 1560	3	6	4⅘
1560 ,, 1574	2	18	7
1574 ,, 1589	2	12	1
1589 ,, 1610	2	8	0
1610 ,, 1643	1	15	3
1643 ,, 1715	1	4	11
1715 ,, 1720	0	8	0
1720 ,, 1789	1	0	0

Système métrique, $\frac{80}{81}$ franc.

Retained at the Mint for Coining.

	Gold per 31,000 francs.	Silver per 200 francs.
1803	9 fr.	3 fr.
1835	6 ,,	2 ,,
1849	6 ,,	1½ ,,
1854	6$\frac{7}{10}$,,	1½ ,,

If the change in France to the *systeme metrique* has been a success, how little difficulty need we anticipate. They had also their £ s. d.—livres, sols, and deniers; the livre, their unit, subdivided also into 20ths and 240ths. But while they increased the value of the franc of circulation over the old livre of account in the ratio of 81 to 80, at the period of its decimalisation, we should scrupulously preserve the identity of our unit of circulation and account.

One of the most inflexible sticklers for the penny—because it is a penny, confesses that the poor man, the stalking horse whom he bestrides in the melée, has no concern with accounts, so that we only leave him the penny-piece to pay the huckster. The essayists who favour as a unit any decimal aliquot of the £, may well be content with the five-mil piece as a needful token in every possible case. Those whose aspirations are for a more catholic system, may wisely join the ranks of those who alone can promote it.

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* Let us record, to the credit of the Mint under the present administration, that at the recent trial of the pyx, the coinage in the aggregate was proved even superior to 11-12ths fine. I have been favoured with particulars, which, however, others may more fitly communicate.

† Recent advices from Sydney quote the exchange at 5 per cent. premium, although the currency is the same in all respects. I doubt whether dissimilar moneys are often exchanged at a loss of 5 per cent., plus three months' interest between one payment and the other.

‡ By the kindness of Mr. Haggard, of the Bullion-office in the Bank, I have here a specimen of one of those gold-bar legal tenders, and a detailed history of the whole lot.

I am here omitting a suggestion of various modes by which the penny, if insisted upon, might remain intact as a current token, an alternative sort of change for a shilling; just as in several countries possessing decimal currency and accounts there still exists a non-decimal aliquot coin, without any confusion or practical difficulty.

As to the fancied incapacity of *our* market people to get over the transition stage, people who habitually deal at 7 for 6*d.*, 13 for a shilling, 4 for 3*d.*, 2 for three-halfpence, &c., it scarcely claims a serious thought. In the glass case on the table, among the coins of nations which have changed their system to the decimal one, will be found the new tenths side by side with old eighths, twelfths, sixteenths, &c.—alternative modes of breaking or giving change for the same unit.

The pound once decimalised, I propose to decimalise the assay of our gold coinage, just as the new qualities of gold wares sanctioned by a recent Act, has, at our instance, been decimalised by the Board of Trade and Goldsmiths' Hall.

In order not to restrict the opportunities of those who are to follow me, I will now, at the request of the chairman, omit to read an explanation of my proposals, by means of a decimalised assay of our coinage, to dispense with troy weight, and then to establish between both English and American moneys and weights simple relations with the weights and moneys of the several nations which have the *kilogramme* or the marc of the *Zollverein.*

Permit me, however, to say, that it is of the greatest moment that fixed simple accepted relations between the standards of commercial countries should be concerted. Here is a table shewing some disparities in respect of particular exemplars of the kilogramme, the marc, and the lb. avoir.

The Three Principal Standards of Weight.

	English Grains.	Authority.
Lb. Avoirdupois	7000	Treasury Commission
Kilogramme	15432·5*	French Mint
	15432·348	Treasury Commission
Cologne Marc	3607·64$\frac{37}{400}$	French Mint
	3608·	
Zollverein Marc	3608·9672$\frac{7}{8}$	French Mint
	3609·5	Bullion-office, Bank

The Zollverein has cut the knot, and made a *Zollcentner*, or cwt., out of 100 half-kilogrammes. France aids, by declaring the marc of the Zollverein equal to 233·855 grammes, notwithstanding that those figures appreciably exceed the weight of the German monetary standard, the Cologne marc. I may mention incidentally that the Chinese tael is assumed to be precisely 1-twelfth of the lb. avoir.; and that Russia has a lineal measure based on the English foot.

56 sovereigns, weighing one pound avoirdupois, at the fixed rate of 25 fr. per £, would precisely purchase 1,400 silver francs, weighing seven kilogrammes. And 25 fr. per £, the conventional par of the market, the fixed rate at which English subscriptions for French loans, shares, &c., are generally computed, would make a silver franc equivalent to a 40-mil piece precisely. Ten copper pennies, if depreciated 4 per cent., would be equivalent, at such fixed rate, to a silver franc exactly. Here then is a relation established between the moneys and weights of the two countries, such as is little likely to be effected otherwise. To make French silver money, as tokens, within suitable limits, legal tender in this country, is to do what has heretofore been done by Royal proclamation, when the five-franc piece was declared a tender for four shillings. Let us see how it would operate upon the interests of both countries. France now parts with her silver money at the legal rate of 15½ kilos. of silver for one kilo. of gold. Giving one kilo. of silver coin for £8, she would part with only 15·364 kilos. of silver per kilo. of gold. As for ourselves, we should to such extent as French silver may suffice for change, lose any profit derived from issuing coin at 5s. 6d. per ounce, the metal of which costs less. But that gain, in respect of a considerable share of our silver tokens, is more than sacrificed by the wear and tear of the coin, replaced with new coin at the public expense. I have been favoured with statistics in proof of this, and, from another quarter, with evidence that the purchase of French tokens, instead of making our own, has already, in certain circumstances, been found economical and advantageous.

I may not pursue this subject further. I touch upon it merely to satisfy those who yearn for international standards, that their proper place is in the ranks of those who seek immediately to decimalize the £ sterling and the pound avoirdupois.

The second paper read was

ON THE BASIS OF A DECIMAL SYSTEM OF MONEY FOR THE UNITED KINGDOM.

By Frederic J. Minasi.

I have been invited to prepare a short paper which shall represent the leading views of one section of those who are desirous to see a decimal system of money, weights, and measures, established in this country. For the sake of the cause I advocate, I could have wished that a less brief exposition had been asked for; I must presume, however, that the majority of those present on this interesting occasion, have already made themselves masters of the main points and difficulties of this vexed question, so as to render it less a duty to afford instruction, than to form a comparison of the two plans which at the present time seem to occupy the chief attention of those who take an interest in this subject.

One of these assumes the pound sterling as the highest unit of account, as at present, and descends in a decimal progression by means of three new coins, termed *florins*, *cents*, and *mils*, of the respective values of 2s., 2⅖ d., and $\frac{24}{25}$ of a farthing. The other plan takes a penny as the lowest coin of importance in present use, and proposes to ascend upwards to the chief unit, by means of a new silver coin of the value of *tenpence.*

The former plan absolutely requires the creation of coins which are incommensurable with the copper currency at present in use:—the latter, by the simple expedient of the *tenpenny*, produces a system which does not interfere with a single coin of any kind. In fixing upon the *penny* as the basis of a decimal coinage for this country, its advocates are ruled by two important considerations; first, that it presents at once a simple and popular way of solving the difficulties of the question; and second, that it preserves intact a coin not only venerable from its antiquity and historical associations, dating back its existence, as it does, to a period many centuries antecedent to the sovereign and shilling, but of the highest importance to the majority of the people of this country; to the labouring classes in particular, who, in whatever form they may receive their wages, do most certainly expend a large portion of them in pence; and who, it is easy to see, would be injuriously affected by any measure that altered the value, as well as the form of the copper coinage—essentially the money of the poor man—especially if that change should involve the introduction of new coins that could not be represented by any possible combination of the old, or of the old and new together, both of which, be it observed, would have to continue side by side for many years. The principal exponents of the *tenpenny* scheme are Mr. Theodore Rathbone, of Liverpool, Dr. J. E. Gray, of the British Museum, and the late Mr. James Laurie, who in his last work devoted to this subject, seems to have clearly established the pre-eminent consideration due to the wants of the poor; and he proved incontestibly that the commodities in common demand, involving all articles of subsistence, are of a value so infinitesimally small, that the decimal fractions of £1 could scarcely lay hold of them, particularly if such articles were to become, as they must, matters of account. When it is considered that the article of tea alone, at 3s. per pound, is sold in ounces, often in quarters of an ounce, and other articles, such as salt, &c., are sold at a certain number of pounds for a single penny, it is no easy matter to reconcile the distribution of such commodities at prices which would not be attended with even a greater loss to the poor than they at present sustain under our existing coins. In any attempt, therefore, to harmonise our coinage with our weights under a decimal system, we must first look at the equivalents of *coinage* compared with *weights*, as they at present exist with reference to these separate integers, viz.—

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* The kilogramme, equal to 15,434 grains (U. S. Mint).

Weights.	Moneys.	Decimals.
1 lb. .	£1 0 0 or 10d.	1·000
8 oz.	10 0 ,, 5	·500
4 ,,	5 0 ,, 2½	·250
2 ,,	2 6 ,, 1¼	·125
1 ,,	1 3 ,, ⅝	·0625

It is here evident that in any assimilation between weights and moneys, upon a principle which should present an *approximation* to the existing values of commodities, if the £1 were adopted as the integer, corresponding to the pound avoirdupois, the ounce descends no lower than 15d.; while in the case of 10d. as the integer, the ounce could be obtained for 5-8ths of a penny of our existing coinage. Now, taking salt, which is sold at 1d. for 3lbs., potatoes at ½d. per pound, soda at 1d., rice at 1½d., besides a hundred other articles of first necessity for subsistence, it may be fairly asked, how are they to be measured by decimals of one pound, whether that pound refers to the coinage or the weights with which the coinage is supposed to harmonise, when the ounce alone is equivalent to 15d., or 1-16th of the pound sterling—an amount far larger than 1lb. avoirdupois of any of the great body of articles consumed by the poor can at present be obtained for?

The leading journal of the day, in a review of the pamphlet and tables of Mr. Laurie, to which reference has already been made, speaks thus:—

"The question seems only whether, by the simple introduction of a tenpenny piece, the people shall be instantly furnished with the means of adopting a decimal currency at their pleasure, which shall, at the same time, give them clear perceptions of the currencies of the principal countries of the world, or whether, by long philosophical efforts, the attempt shall still be made—although year after year passes without any apparent advance—to bring them at some distant but undefined day, to banish the penny in favour of the mil, and while thus gaining some of the advantages of the decimal system, to separate themselves hopelessly from any general affinity with the currencies of the nations with whom their chief intercourse is carried on." *

The abolition of the penny, not only as a coin of account, but, what is of more importance, as a current coin, as proposed by the late Committee on Decimal Coinage, is attended with so many important considerations that it cannot be a matter of surprise that the government of the country should decline to carry out the wishes of the partisans of the *mil* system without due consideration. Not only, as just referred to, are a vast quantity of articles retailed at this price, but it requires additional importance as being the basis upon which rates and taxes are calculated, as well as from its connection with postage, stamps, tolls, and railway fares, all of which would be disturbed by the substitution of the 4 or 5 *mil* piece for the penny—the former being 4 per cent. in defect, and the latter 20 per cent. in excess of that coin. Of the proposals made to meet these great difficulties there does not seem to be one that a House of Commons would be likely to sanction.

Further, there are difficulties connected with the practical arithmetic of the pound-and-mil scheme for a decimal coinage that do not appear to have received the attention which their importance merits—difficulties that must produce an amount of uncertainty in computations involving the lower denominations of the new money little calculated to produce confidence among a trading community. It is worthy of notice, for instance, that out of 960 amounts commencing at ¼d., and increasing by the same sum up to £1, only 40 are capable of accurate representation in *mils*, the remaining 920 being only *approximations*; hence, if a mode of reckoning on the plan of this decimal system be used, it is easy to see that serious errors and great confusion would result from its adoption, especially to the great mass of the people, who, it is unnecessary to say, are not skilled in decimal arithmetic. As an example of the difficulties referred to, let it be required to calculate, on the proposed plan of 1,000 *mils* to the pound sterling, the value of, say 9,000 articles at the present price of 10s. 2½d., the correct answer to which is, £4,593 15s., or £4,593 7fl. 5c. According to Professor De Morgan, the representative of 10s. 2½d. on the new scale is 511 *mils*, whence—

9,000
·511
———
£4,599·000
Real value... £4,593 15s.
———
Or, £5 5s. in *excess* on this supposition.

Nor is this all, for, according to the table of Sir John Bowring, in Appendix III. to his work on the Decimal System, 510 is the equivalent of 10s. 2½d.; from which we obtain—

9,000
·510
———
£4,590·000 or a sum in *defect* to the amount of £3 15s.

The opponents of this scheme, therefore, are justified in their views on this point; indeed, there seems no escape from the conclusion, always bearing in mind that decimal *fractions*, and a decimal *coinage*, with a method of calculation *agreeing therewith*, are different things. The *exact* value of 10s. 2½d. may be represented by ·510416̇, by the employment of which, of course, a correct result may be obtained by travelling into the regions of interminable decimals, but at such an additional cost of figures in ordinary cases, that the advocates of the pound-and-mil system have not cared to exhibit to the public so awkward a sample of their labour-*saving* plan.

Mr. Robert Mears, the author of "Decimal Coinage Tables," has endeavoured to overcome the difficulty here alluded to by the addition of vulgar fractions of a *mil*; by means of which he is able to give the exact values of present money, and consequently avoids the large errors just pointed to; unfortunately, however, for Mr. Mears, whilst saving his ship from *Scylla* he is dashed against *Charybdis*, for the addition of a long column of his decimal figures with vulgar fractions having denominators composed of every submultiple of 24, presents a task that will hardly be considered a recommendation in a *decimal* computation. Mr. Franklin is more politic in this matter, exhibiting in his tables the numerators only of these fractions, to be employed "in case of need." Sir John Bowring has not attempted to exhibit such unfortunate exactness.

As another example, may be taken a question proposed by Professor Moseley to the pupils of the Normal Schools, in the last examination for certificates of merit:—"If a spoon cost 7s. 9d., how many dozen can be bought for £44 8s. 3d.?" The question, we are told, is to be worked out on this decimal division of a pound. Now 7s. 9d. is a sum between 387 and 388 *mils*, and £44 8s. 3d. lies between £44 412 *mils* and £44 413 *mils*. Let the question be worked out with these values, and it will be seen that of four solutions there will be four *different* results, and *every one of them incorrect*. Can we wonder at the remark made by an organ of the normal schools that "multitudes of very laborious and deserving candidates, who had been fagging at the expense of health and family comforts, were fairly (?) beaten" on this occasion. This which may be regarded as the first practical working of the *mil* scheme, seems to have turned out a failure, as must every system founded on approximations. I am not willing to leave this part of the subject without noticing the attempts of certain exponents of the millesimal division of the sovereign to exhibit unfair contrasts between that system and the one in present use; for example, in a treatise on this subject by Mr. Henry Taylor, are to be found a great many of these comparisons, hardly one of the decimal solutions of which is free from error. I select the following:—

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* *Times*, Sept. 20. 1854—City Article.

"Multiply £58 17s. 1½d. by 35.

(PRESENT METHOD.)			(BY THE MIL SYSTEM.)
£	s.	d.	£
5	17	1½ × 35.	58·856
		11	35
647	8	4½	294·280
		3	1765·68
1942	5	1½	£2059·960
117	14	3	
			Or, £2,059 19s. 2½d.
£2059	19	4½	26 figures."

38 figures.

I need scarcely say that a sharp little fellow to whom I gave this question, worked it as follows:—

£	s.	d.
58	17	1½
		5
294	5	7½
		7
£2059	19	4½

22 figures.

Another example is thus exhibited:—

"Multiply £562 10s. 4d. by 125

		10	£562·516
			125
5625	3	4	
		10	2812·580
			11250·32
56251	13	4—100 times	56251·6
2812	11	8—5 times	
11250	6	8—20 times	£70314·500
			Or, £70, 314 10s.
£70314	11	8	37 figures."

49 figures.

It is easy to see that this illustration may be worked out in 32 figures. So much for prepared examples; than which there can hardly be anything more specious, for people look upon a subject as conclusively settled when figures are paraded before them, and without the disposition to examine them, naturally come to regard the subject as incapable of contradiction. There are other overstated advantages before the public, as, for instance, the amount of labour that could be saved in the counting-house, and in the education of youth, which deserves further examination at the hands of practical men. That a decimal system of money, weights, and measures, would really be a labour-saving machine, especially in some kinds of computation, cannot, I think, admit of a doubt, but it would hardly be to the extent that has been stated by the partisans of the pound and mil system, apparently for the purpose of inducing the public to worship the golden image they have set up. A late writer in the "Eclectic Review,"* assures his readers that not only will the compound rules of addition, subtraction, multiplication, division, and reduction disappear from our school-books, but that practice, rule-of-three, and even vulgar fractions, will follow them.

Against such assertion it should be protested that so long as our other measures of weight, capacity, length, &c., continue—so long as other countries shall continue to use compound scales, or the student would ascertain the relations of the money or weights of former times—so long as a week contains 7 days, and a year 365 days;—so long will it be necessary for the arithmetician to be acquainted with the modes of calculation on the compound scales; and, as to practice, proportion, and vulgar fractions, why should they be banished when they afford methods by which, even should a decimal coinage be established, results can be more quickly arrived at than by decimals.* An examination of "Guilmin's Arithmetique," one of the authorised works for public instruction in France, will prove the incorrectness of these assertions. There, with a complete system of decimal money, weights, and measures, the pupil is nevertheless introduced into the mysteries of rule-of-three, of vulgar fractions, and of rules of exchange, and reduction of the old moneys and measures of France to the new; processes all requiring, more or less, compound arithmetic.

A natural and not unreasonable hypothesis of those who advocate the adoption of £1 as the unit of a decimal system of coinage for this country is, that the present system should be wholly discarded, that it should all at once be abandoned and forgotten, just as if it had never existed, and that the decimal parts of that unit should be adopted, without any reference or consideration to the present and long-established arrangements, either with respect to coins or weights; the whole must be altered, the only difficulty being the *transition* between the old and new order of things. In such a case, we may imagine that we should have to revert to the principle adopted by our forefathers, namely, that our coins, weights, and measures, should be based upon some system of equal sub-division, and that, as an improvement, we should have to substitute the decimal for the duodecimal system, the question only being, what is the best unit to be adopted for such an object? Whether such unit be 1*l.*, or 1*l.* 0*s.* 10*d.*, or 2*s.*, or 2*s.* 1*d.*, or 100*d.*, or 10*d.*? There can scarcely be a doubt that this *questio vexata* must be decided, either by the respect due to the wants of the humbler classes, with reference to the commodities in general demand, and the means of obtaining and measuring these wants, by some system of coinage to be founded upon them,—or by the consideration due to monies of account alone, irrespective of such wants.

Were society to begin again, which would almost be imagined necessary so as to give a fair chance to the theory of the £1 sterling as the unit of our coinage, with a corresponding unit of 1lb. avoirdupois, or, rather, some greater weight, harmonising better with a large money unit, it would seem that we should only improve on the sagacity of our ancestors—if, indeed, it could be called an improvement—by adopting a decimal instead of the duodecimal system. It ought, however, never to be forgotten, that the *pound of silver* itself, like any other commodity, was governed by weight, as its name implies; that in the earliest periods of our history, long before gold had been introduced as an element in our coinage, the *troy pound* of silver was the foundation of our pound sterling, and that coinage itself was an expedient introduced as an evidence of the purity and weight of the metal.

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* November, 1854.

* As an example, take the following:—Calculate the value of 496 articles at 2 *florins*, 7 *cents*, 5 *mils*.

BY DECIMALS.

496
·275
2480
3472
992
136·400
£136 4fl.

BY PRACTICE.

2fl. 5c.	¼	496
2c. 5m.	$\frac{1}{10}$	124
		12·4
		£1364fl.

Such is the principle of our coinage even at the present day, although the improved intelligence of the people has led to the establishment, first, of silver itself, and subsequently gold in place of silver, owing to its scarcity, as the best and only measure of value; still, however, governed by the troy weight; and we should be careful not to introduce any alteration in the standard quality of that metal which measures the value of all property in the country, without due and anxious consideration.

The third paper read was

ON DECIMAL COINAGE.

By Hugo Reid.

The advantages of a decimal system of coinage are generally admitted, but there is much difference of opinion as to what system it would be best to adopt. My object in the present short paper is to bring more prominently into notice one or two important considerations which I think have not been sufficiently insisted on.

I may state at once that the system which I recommend is, to take the florin, or two-shilling piece, for the leading coin or *unit*, and to divide it into 100 parts, to be called *cents; florins* and *cents* being the only denominations to be used as coins of account.

The following four points appear to me to be essential in introducing a decimal system of money and accounts.

1. *That it shall be completely decimal, not composed of a decimal and a non-decimal part.*
2. *That there shall be only two coins of account, one leading coin or unit, the other the hundredth of that coin.*
3. *That the less coin of account shall be of sufficiently low value to meet all ordinary requirements of the poorer classes, and render fractions very seldom necessary.*
4. *That the leading existing coins shall be preserved in, or be easily convertible into, the new coins of account.*

The first requirement is, that the new system shall be thoroughly *decimal*, meaning, by that term, not merely proceeding by *tens*, but by any power of *ten*, as 100, or 1000; in short, a system in which reduction to a different denomination is effected by the simple cutting off or annexing one or two figures—by simple inspection. That is the essence of the decimal system, not that each coin of account shall be 10 or $\frac{1}{10}$ of the next. It is not worth while making a change that is not to be thorough. If, as has been proposed, we adopt the pound, tenpence, and penny as the coins of account, to bring tenpences to pounds we have the troublesome divisor 24, involving very little less work than the old operations of dividing by 4, 12, and 20, and certain to create much more work in the fractions which would be often required when the lowest coin is so high in value as one penny.

The second requirement is, that there shall be only *two* coins of account, one leading coin or *unit*, and the hundredth of that coin. This appears to me a *sine qua non.* It has been generally thought that *decimalising* our coinage is all that is necessary; but advantage should be taken of the change to introduce another very important simplification—to relieve us from the trouble and complexity of *four* coins of account, by at once reducing these to *two.* This would be useful by making the mere *expression* of any sum of money more short and simple, but it would also save much time and trouble by facilitating mental calculation. Most persons are tolerably familiar with the relations of numbers under a hundred, consisting of two figures only. Of the various products in the common multiplication table, only six are above 100, and the highest of these is under 150, so that from this circumstance, as well as from their greater simplicity, mental operations with two figures are, to the great majority, of infinite ease, compared with operations involving three figures. Now, if there be but two coins of account, the less being one hundredth of the greater, there would never be more than two figures of the less; the mind will readily perceive the value of any sum expressed in two figures, and mental operations of addition, subtraction, multiplication, and division, which are often of the greatest convenience, will be possible to thousands, who would be quite incapable of such operations with three figures. It is to be observed, as illustrating practically the importance of this point, that, in the United States of America, in France, and in other countries of the Continent, this arrangement is adopted. In the United States, money is expressed in dollars and cents., the intermediate decimal coin, the *dime*, being always omitted. In France, francs and centimes are the coins of account, the intermediate decimal coin, the *décime* being dropped. Further, the French, in their measures of length, have found it convenient to slip into the same method, and speak always of *metres* and *centimetres*, dropping the *decimetre.* Whatever be the other features of the system to be adopted, this one is certainly of the first importance, and, it appears to me, has not been brought out with sufficient prominence.

The *third* point is, that the lower of the two coins of account shall be sufficiently low to express all ordinary money transactions, so that fractions shall very seldom be required. It seems to be the general opinion that the present farthing descends as low as is necessary, and that the lowest coin of the new money of account should be little, if at all, above the farthing in value. The Parliamentary Committee propose what they call the mil, equal to $\frac{24}{25}$ of our present farthing; the penny seems to be generally thought too large for the lowest coin—the $\frac{1}{10}$ of a penny too small. This is a point to be decided by the experience of practical men; their experience, as far as it can be gathered, our own previous practice, and the practice of other nations, all seem to concur in showing the necessity of the lowest coin in the new system being near the value of the farthing.

The fourth point is, that the leading existing coins shall be preserved in the new coins of account, or be easily convertible into them. As a general proposition this will command ready assent, but there are infinite differences of opinion as to the existing coins to be preferred as the basis of the new system. It unfortunately happens that there is no truly decimal system that will harmonise with all our present leading coins. These leading coins are three—the pound, the shilling, and the penny. The pound and shilling are incompatible, decimally, with the penny; we must, therefore, either retain the penny and sacrifice the pound and the shilling, or retain these, and lose the penny. In the discussions I have heard or read on this subject, the battle has generally been between the pound and the penny, the shilling being overlooked. But this is a very important coin, wages and the prices of vast numbers of articles being commonly expressed in shillings. Considering that the pound is our present standard of account, and that the shilling is so universally in popular use as a measure of value, also that the Parliamentary Committee, after hearing the evidence of a number of the most competent judges to be found in the country, decided in favour of the retention of the pound, it appears highly desirable to adopt some system that will preserve to us the pound and the shilling.

If then, the 2nd and 3rd points be deemed of paramount importance, as I think they are, and if the farthing be about the proper value for the lowest coin of account, it follows that the *unit* or principal coin of account must be somewhere about the value of 100 farthings, or nearly two shillings. The nearest existing coin is the *florin*, which with its 100th part, nearly a farthing, gives the system here proposed, which appears to me to meet the four principal requirements better than any other.

1. It is thoroughly decimal. 2. It has but two coins of account, the florin and its hundredth. 3. That hundredth, nearly the value of our present farthing, is sufficiently low in value to express the great majority of small transactions, and save the use of fractions. 4. It harmonises with two leading coins, the pound and the shilling: florins are brought to pounds by the simplest of all arithmetical operations, dropping the right hand figure,

which will be so many florins, the rest being pounds; and pounds are brought to florins by simply annexing a cypher or other figure at the right. And as the shilling is one-half of the principal coin of account, it will always be retained in the coinage, and shillings will be brought to florins by the easiest divisor after 10, 2; and florins to shillings by multiplying by 2.

Thus, 12,345 cents would be read, 123 florins, 45 cents, and it would be seen at once that there were £12 3fl. They might be read £12 345 cents, but this would be objectionable, as giving *three* figures of the less coin; or, they might be read £12 3fl. 45c., but this would be tedious and intricate, as involving *three* coins of account.

If the copper coinage be adhered to, we should then have for our coins of account the farthing and a coin of the value of 100 farthings (2s. 1d.), but this coin being $\frac{25}{12}$ of a shilling, or $\frac{5}{48}$ of a pound, it would be troublesome to reduce it to shillings or pounds. If the halfpenny were thought sufficiently small, the unit would be 100 halfpence (4s. 2d.), having the relations of $\frac{5}{24}$ and $\frac{25}{6}$ to the pound and shilling.

The system here recommended is practically the same as that brought forward by the Parliamentary Committee, with only a slight modification in form, essential, as it appears to me, to render the decimal system simple and easy in practice. But, whatever system may be fixed on, I contend that it should be thoroughly decimal, of only two coins, the unit and its hundredth, and adapted to express small transactions without fractions; these great principles are equally necessary, and equally applicable whether the pound or the penny be adopted as the basis of the new system.

Further, is not this a subject on which the Society might appoint a Committee. Much new matter has been brought forward since the report of the Parliamentary Committee was published—there has been much public discussion since that time, and a report on the present state of the question emanating from the Society now might greatly promote the establishment of a decimal system.

DISCUSSION.

Mr. W. **Miller** said, it seemed to him, that there was very little difference between the plan of Mr. Reid and that recommended by the Committee of the House of Commons. The only difference appeared to him to be as to where the decimal point should be put — which should be considered the fractional, and which the whole numbers. That, however, was a difference which could be easily got over by practice and experience. They could hardly know beforehand, what the public would do in the matter, but no doubt they would put the point where it best suited them. With regard to the paper of Mr. Minasi, he would make one or two observations.—Mr. Minasi seemed to claim for the penny great antiquity, and many of those who argued the subject, talked of standing upon the ancient ways, and spoke of the Poor Man's Penny, as something so connected with the mind and heart of the poor man, that it would be doing a great wrong if any alteration were made. They had only to consider two or three points in the history of the coinage of this country, to know that the penny had experienced great alterations. In the first place, he would remark that the penny by itself had never been a measure of value in England. It always derived its value from the pound. That he was fully prepared to maintain. In the most ancient times, the penny was derived from the pound of silver. Before the invasion of the Danes, the pound of silver, so far as he had ascertained, was 7,200 of our present grains, or 9,600 corns of wheat taken out of the middle of the ear, and the value of the penny was 1-300th of that weight. Its value was always in reference to the pound of silver, but the penny was not intrinsically worth 1-300th of the pound of silver, but only 1-320th part, so that the coin passed for more than the actual value of the proportional part of silver allotted to it by so much as 300 bears to 320. At the time of the Conquest the pound of silver was altered; instead of 7,200 grains, the pound troy was introduced; the pound consisted of 60s., of 5d. to the shilling; it was altered to 60s. of 4d. to the shilling, and thus the pound weight became 5,760 grains. The penny, deriving value from that pound, circulated still for more than its actual value. They came down to a later period—when great quantities of base metal were introduced, and the penny was clipped and mutilated; then they found the law passed, 12th Edward I., that all commodities above the value of 5s. should be paid for in weight, so that the penny was always received at something more than its real value. That brought them down to the year 1816. What was the penny then? Not what it now is—the 240th of 113 grains of fine gold. In 1816, it was only the 240th of 15s. 2d. of our present money; so that the penny had undergone a great many changes, and he repeated that it never had been in itself a measure of value, but always had reference to the pound as the great measure of value, for a penny meant a coin which would weigh so much to the pound. He then referred to the example brought forward by Mr. Minasi as illustrative of his system, and remarked that he considered comparative statements, such as those were unsatisfactory, because, where they had unequal gradations, there was so much of the operation to be done which could not be recorded. In the last diagram, of 32 figures only, the most difficult part of the operation was not set down at all. The other plan, although it showed 37 figures, was straightforward work. Still the multiplication by 125 was a clumsy mode of operation, when a division by 8 would do as well, which would have taken only fifteen figures. With regard to the penny, he had only to say, in addition, let them imagine the paying and receiving of the thousands upon thousands of pounds which exchanged hands in this large city in the course of a day, and for every sum they had to receive they had to divide by 240, or multiply by 240, before they could tell what they had to pay or receive; before they could pay in pounds they must divide by 240, and if they had to receive they must multiply by 240 to make the record. As to the alteration of 4 per cent. in commodities purchased by the poor man, it was not of the smallest consequence. The poor man waited till he could afford to buy his herring;—one man might buy it at a halfpenny, another at a penny, and a third at 2d., but 4 per cent. in the price of the herring would bring it within the poor man's means a little earlier. He mentioned this to show what a great difference there was in the price of the commodities upon which so much stress had been laid. The terms "scheme," "plan," "system," had been applied where there was nothing but proposition. The proposition in itself was a simple one, which would occur to every school boy who was plagued with a reduction sum. Why could not they keep their accounts in pence? That was the whole system. If they kept their accounts in pence, they had the sixpence and the fourpenny piece, and that was their tenpence. There was nothing to hinder a merchant from keeping his accounts in pence to-morrow, although, probably, he would not think of doing such a thing.

Mr. **Ryley** said that he would endeavour to observe the Chairman's injunctions of brevity, in the observations he had to submit to the Meeting. It might, perhaps, be useful to remind them that the only advantage sought to be gained by any change, was an arithmetical one. It so happened that we had an excellent notation for numbers abstractedly considered; but that when we came to apply those numbers to such objects as coins, and so to express these in account, we left the simplicity of arithmetical notation, and passed to a different and complicated system of notation. In fact, a considerable part of the difficulty lay in the mere different bases of notation. We had fortunately a good system of arithmetical notation; but, even if it had been a bad one, it would have been desirable that the notation of abstract numbers, and applied numbers, should be the same. He could not but think, that the difficulties of making this desirable change, had been greatly overrated. It had been confounded with questions with which it had, in fact, no connection. It had been actually supposed that the question of prices had something to do with this question of the notation of accounts, and the issue of corresponding coins: and he had heard a good deal of the poor man's penny. Now he begged emphatically to remind the Meeting that this question had nothing whatever to do with prices, which would immediately adjust themselves to any system of notation of account, or of coinage, provided there was in these a sufficient subdivision of value, to enable the poor man to pay for small quantities of articles at a low price or value. As no one had proposed that the lowest denomination of coin should be of larger value than the present farthing, the poor man's only question was as sufficiently attended to in any of the proposed systems, as in the existing one. But he (Mr. Ryley) thought that system would be found the best which gave the greatest subdivision of value. It might not, perhaps, be generally known that it was common in the manufacturing districts, and even, to his knowledge, in the neighbourhood of London, for small quantities of pins to be given as change; not only when the change required was less than a farthing, as in the purchase of a quarter of a yard of calico, at 5½d. the yard, but even when the change required might be a farthing itself. This arose from the exceedingly insufficient supply of our existing farthing; and this insufficient supply arose from the circumstance that the bankers, who were the great medium of supply between the Mint and the great mass of the community, were accustomed to ignore the farthing, and pay sums of money, only in pounds, shillings, and pence. The question of the unit of account had again been treated with an utter misconception of the meaning of a sovereign or pound, as applied to foreign mercantile transactions; and it had been alleged that evening, as a great inducement to the retention of a pound as the unit of account, that it was the coin which had a larger circulation as a standard of value, than any other known coin. Now, in point of fact, he believed it would be found,—he had inquired amongst his mercantile friends, and been told that it was so,—that the Spanish dollar was, more than any other coin, the medium of exchange and the coin of commerce; but, quite independently of this, the sovereign, as used in foreign mercantile transactions, was only taken as a piece of gold, of a certain weight and fineness; and, in such dealings, to call the piece of gold a pound or a sovereign, was only to give it an inappropriate name, and an individuality which had, in fact, no real existence, for it was as gold, not as coin, that it changed hands in foreign commerce. Having premised thus much about the supposed, but, as he thought, the unreal difficulties, which had been suggested, he would observe that, with respect to any chosen unit of account, the matter really to be attended to, so that the change might come about in the easiest and most natural way, and be of the greatest advantage, was that the unit should be so chosen as that it would be easy to obtain an exact coincidence between the language of the people, the money of account, and the coin of payment. These advantages existed in the present system: we talked about pounds, shillings, and pence; we carried our transactions to account in our books, as pounds, shillings, and pence; and, when it came to payment, we paid our debts in coins called pounds, shillings, and pence. The single exception was the guinea, which had remained in our language after the coin had become obsolete; and the payment of the same had to be made, necessarily, in coin of other denominations. Now, if it were agreed that this coincidence of language, accounts, and coin of payment, were desirable, he considered that the conclusion was rresistible in favour of decimalising upon the shilling—that was—making the shilling either the unit or the tenth of the unit. This would preserve to us the greater part of our coin and language in talking about prices. Sugar was thirty-seven shillings, not one pound seventeen shillings, the cwt. Corn was seventy-four shillings the quarter, not three pounds fourteen shillings; and if any one would go into Lloyd's Room, he would find that the underwriters would quote any premium whatever in shillings rather than in pounds; thus, one risk was eighty, and another even one hundred shillings *per cent*, when four or five pounds would appear to be the more natural expression. The retention of the shilling as the unit, or the tenth of a new and higher unit, would secure the conformity between coin, language, and account, in ninety-nine out of a hundred of our daily transactions, and its hundredth part, which would be less than half a farthing, would be found to be a great practical convenience in very small retail dealings. This would certainly entail the loss of the pound in questions of account, but he could not consider that any very great loss; on the contrary, it was rather an objectional denomination, as there was a confusion between the pound of money or value, and the pound of weight. Prices, he would again observe, were questions of comparative exchangeable value, and would adjust themselves naturally to any system, and he thought that the only thing to be sought of coin and notation with respect to prices, was that the money of account and the coin of payment should have a subdivision sufficiently low to meet the wants of the people in their daily transactions.

Mr. Shields remarked that amidst the conflicting opinions which had been expressed in the papers which had been read that evening, he could not help thinking that the real guide to the difficulties of the subject had been overlooked in going back to prove the antiquity of the penny, and in a morbid consideration for what was called the poor man's penny, or shilling. It struck him that the scheme brought forward by the Decimal Association was one which, if fairly tried by the facts of the case, without these diversions, could not fail to be the one which must hold. It began with this fact—an indisputable fact—we *have* a unit standard common measure of value—the pound sterling. He felt sorry for those who were confused by the meaning of the word *pound*, especially as we have the pound troy and the pound avoirdupois, and used with other meanings of the word, but any one who chose to inquire what was meant by the pound sterling, would find it to be a given weight of gold, of a given standard of fineness, impressed with the mark of the Mint. The next step in the case was this, the sovereign altered in value, that was, at times a sovereign would buy 20 loaves of bread, and at other times 40 loaves, and so with regard to all other commodities. That was what he meant by the value of the pound sterling; but as to the price of it, it struck him there was some little misunderstanding. The truth was, as the Mint coined for nothing, uncoined gold of the Mint standard, and coined gold, fluctuated in value together; for any one having uncoined gold could receive weight for weight for his uncoined gold in sovereigns with the small deduction of three halfpence per ounce. Whatever alteration took place in the value of the sovereign, was a thing they could not rule, but they must remember that having made an arrangement with society upon this unit standard of common measure of value, they ought to pause before they tampered with it. Here was a sum representing a given weight of gold. What that would purchase they had nothing to do with, but whenever the government adopted the silver standard advocated by Mr. Reid, he (Mr. Shields) contended that the bargain made with the people would be violated.

The Chairman—Does Mr. Reid employ a silver standard?

Mr. Shields—He begins with the florin.

The Chairman did not understand him to employ that as a silver standard.

Mr. Shields—Assuming, then, that they were agreed that no honest set of men would tamper with the unit standard measure of value, the question was—how were they to divide it decimally? He was greatly astonished to hear so much about this tenpenny piece—the twenty-fourth of a pound. In the name of Cocker what decimal was that? If a man were occupied in teaching the nature of the decimal system, he would be astonished to find any one proposing such a solution of the decimal system of money as that which was proposed by the gentlemen (Mr. Minasi) who read the second paper. To go one step further with reference to the position taken by Mr. Reid, let them take a case. Supposing he had to represent on paper 5 sovereigns, 5 florins, and 55 cents. According to the system propounded by the Committee of the House of Commons, and advocated by the Decimal Association, he would have to put it down 5·555, but, according to Mr. Reid, the point was pushed one place further to the right, and the sum written 55·55. In a sum of a given number of figures, any arithmetical operation to be performed would be equally easy wherever the decimal point might be placed; therefore he could not see what was hoped to be gained by that. He could not help thinking that the Society of Arts might do much towards effecting the change in the system of coinage in this way—no doubt a committee would be useful; but if that little chapter upon decimal money, published by Mr. de Morgan, in an Appendix to his Arithmetic, were introduced into the Government Schools, they would have amongst the poorer classes a race of people prepared for the change which the decimal system of coinage they were desirous to make would effect, and who, because they would understand, would also appreciate the benefit of the change which was proposed.

Mr. Jellicoe said, when this subject was recently revived by, he believed, Mr. William Brown, the hon. member for South Lancashire, and his attention, amongst others, was first drawn to it, the arguments brought forward in support of the penny unit somewhat influenced his mind in its favour. On future consideration, however, and perusal of all that had been written on the subject, he had not hesitated to come to the conclusion that there could be no other unit of account advantageously introduced in this country than the pound sterling; and that it was very desirable that a decimal system, both of coinage and of money of account should be established on that basis, with as little delay as possible, if it were to be established at all. It appeared to him that the inconveniences anticipated by a change in our present system, had been and still were greatly exaggerated—many very important alterations in the coinage had been made from time to time, and no one that he was aware of had experienced inconvenience in consequence. Thus the guinea had been suppressed, and after many years had almost entirely disappeared; whilst, on the the other hand, they had recently witnessed the introducton of the florin, and the three-penny and four-penny pieces—and he thought most people would agree that these changes, which afforded greater facilities of *change*, had been rather a convenience to the public than otherwise. It was true that the two new coins required under the proposed system, would not be aliquot parts of some existing ones. But no great difficulty need be apprehended, he conceived, on that score. On their introduction they would immediately find that the smaller class of shopkeepers and salesmen generally, would be selling, as now, a given quantity for a three-penny piece and a penny, and proportionably less quantities for a cent and a mil; and as the two former coins became rare, the quantities allotted for them would cease to be in use. In many respects, these coins of smaller value would be a boon to the poorer classes; and it was only that class of persons that they need have any apprehension about, since there was abundance of intelligence amongst toll-owners and railway Directors, to see themselves righted, let the changes be what they might. Let them, then, suppose a decimal system established as regarded our coinage, and that it remained to adopt it in accounts. They could hardly doubt that bankers would be amongst the first to keep their accounts on the new system, because their customers, for their own convenience, would commence drawing checks for pounds, florins, and cents, instead of for pounds, shillings, and pence, as at present. Some little embarrassment would perhaps arise while both systems were retained, and it might be found desirable at first to make no other change than the addition in account books of two columns to the present ones, for florins and cents, so that checks in either currency might be readily entered. The shillings cast up would then represent half the number of florins, and every twelve pence could be added as five cents. This period of transaction, however, would no doubt be shortened by notices in all public offices requesting observance of the new system, and if even it were found necessary, in some instances, to retain the old one for a time, the progress of the new need not on that account be staid. In this way, any difficulties in the more important and rapid transactions of daily business would be obviated, and as compared with them, the ordinary buying, selling, and bill paying, would, as it appeared to him offer none of importance. He was trying to look closely at the operation of this change, because a good deal of needless apprehension, as he thought, existed in some persons' minds with regard to it, which it was desirable if possible to remove; and also he wished to show that the same sort of embarrassment must evidently arise if the farthing or penny be adopted as the unit of account, and that no advantage, so far, would accrue from the adoption of a change so radical in its character as to be regarded very generally with repugnance. In a country like Turkey, they could understand a currency consisting of piastres, and accounts kept in them. But with a range of prices such as they had in England, the accounting in farthings or pence would be scarcely tolerated. The arguments put forward in favour of each particular system were numberless; but after the opinion expressed in the reports of the two Royal Commissions by the Committee of the House of Commons, and supported by the evidence of such men, amongst others, as Sir John Herschel, Sir John Lubbock, Mr. De Morgan, and their present chairman, it appeared to him that they could come to but one conclusion, viz., that if they were to have any change let them have the one so powerfully recommended—if not, the sooner the public was instructed in the mysteries of decimal arithmetic the better it would be for all parties.

Mr. William Brown, M.P., said. having acted as the chairman of the Decimal Coinage Committee of the House of Commons, it might be presumed that he had bestowed some little attention upon this subject. The penny advocates appeared to be the greatest opponents of the recommendations of that committee, on the ground that the poor man might be cheated if any other copper coins were used. Two witnesses stated that they each took about 1,000 farthings per week, and such persons made it their business to apportion the quantities they sold to the money they received. The penny did not make the fixed quantity of the article any more than the mil would do, and hence he thought it was of very little importance what the copper coin was, so long as the people understood it, and from his own experience, if an account was made out a penny or even a farthing wrong, the poor man was the first to point it out. They greatly underrated the intelligence of the working classes of this country by supposing that they would not know the value of one mil, or five mils, as well as those who occupied a higher station in life. The moment they told them they would get 25 mils or farthings for their sixpence, in place of 24, they would see that it placed them in a better condition, inasmuch as a mil would go as far as a farthing in many cases. He thought he need offer no further remarks as to the poor being likely to suffer from the introduction of a copper coin different from the penny. Mr. Stewart, an inspector of schools, had informed him that the decimal system of arithmetic had been introduced into the Industrial Schools at Liverpool, and on the occasion of his visiting those schools, he examined a class, and was astonished to witness the rapidity with which pounds, shillings, and pence were decimalised by the scholars there; it was done mentally and immediately, without any defaulter, and the master said to him, "Only give us the one, two, and three mil pieces, and I will teach the boys their lessons in an hour, instead of two or three days." With respect to the feeling of the country generally on this subject, he might state that he was favoured with the perusal of a number of letters addressed by the Government to various bankers, and the question was, as to how they appreciated the florin, and he might state that almost universally they preferred the florin to the half-crown, as they regarded it as the entering wedge to the introduction of a decimal system, to which they looked forward; and, further, the most influential of all banking institutions—the Bank of England—testified their approbation by a donation of 100*l.* towards the circulation of a pamphlet, which had been issued in advocacy of the system. Weight of evidence was generally looked at in determining the merits of a scheme, and when he read the names of the gentlemen composing the two Royal Commissions, as well as those who formed the Parliamentary Committee upon Decimal Coinage, and when he considered the results at which those commissions arrived, he had no hesitation in saying that the opinions of men of their position and standing, and world-wide fame, were entitled to the highest consideration. The first committee, he believed, reported in 1841. That committee was composed of—The Astronomer Royal, Mr. Bailey, Mr. E. D. Bethune, Sir John Herschel, the Speaker of the House of Commons, Sir J. W. Lubbock, Rev. R. Sheepshanks, and Mr. Peacock. The second committee was composed of—The Astronomer Royal, Lord Wrottesley, Lord Rosse, The Dean of Ely, Sir John Herschel, Sir J. W. Lubbock, Prof. Miller, Rev. R. Sheepshanks, The Speaker of the House of Commons: Chairman, Astronomer Royal. They examined both foreign and domestic evidence as to the advantages or disadvantages of decimalising weights and measures, and they could not conclude their report, which was confined to weights and measures, without making this very important remark, which he would trouble them by reading, "They examined many witnesses, and in 1841 presented their very able and elaborate report, in which they remark, that a decimal arrangement of the coinage was so connected with that of weights and measures, that they could not refrain from stating that one would be incomplete without the other, and that their report would be unsatisfactory, if they did not recommend that the coinage should be at once decimalized, dividing the pound sterling into 1000 parts." That (continued Mr. Brown) was the testimony of those very important commissions, and he might state to the meeting that, without any great exertion on his part, but with a view of abridging the labours, not only of the school teacher, but the labour of the counting-house, no fewer than 250 Members of Parliament, with many other intelligent persons, had become members of the Decimal Coinage Association, which had been formed to carry out these views by disseminating the knowledge of the advantages of the system throughout the country. He would say one word with regard to the question of a universal coinage. Supposing France, England, and the United States, were to agree upon a national currency, and one of those countries was prepared to make sovereigns of 113 grains of fine gold for all. Supposing America did it, it would depend upon the latest advices from England in which of the countries the sovereign was most valuable for the time being, for, unless the sovereign was more valuable in France than in England or America, or more valuable in the United States than in England or France, neither country would be inclined to go to the expense of freight, insurance, and other charges consequent upon the exportation of bullion. The operations of trade were continually increasing or decreasing the purchasable value of gold and silver. The gold and silver might retain the same intrinsic value in weight and fineness, but the purchasable value altered every hour, and the fluctuations of trade prevented the balance of demand being against either country; so that, he thought the hope of a national currency was out of the question, indeed, he regarded it as one of the greatest fallacies that could be entertained. He would detain the meeting further only to mention that, although the mercantile community of Liverpool had had the penny unit placed before them more prominently, perhaps, than any other town, by Mr. Rathbone, who, no doubt, conscientiously believed it to be an advantage—a petition was sent to the Chancellor of the Exchequer from the Liverpool Chamber of Commerce—a most influential body, who perfectly knew what they were about—praying the Government to adopt the pound sterling as the unit, and to give them the decimal system; and, for his own part, he thought that was the most convenient one to be used, and the only one that Government could adopt, sustained as it is by the Reports of two Royal Commissions and a Parliamentary Committee.

Mr. Moore begged to suggest a few practical difficulties in the way of the adoption of any other unit than the pound sterling, which had been entirely overlooked both by Mr. Minasi and Mr. Reid. Mr. Minasi proposed a new tenpenny coin, which he termed an *argent*, as a coin of account, but appeared to forget that in receiving money they had to count the actual coins. He did not bear in mind that in the Bank of England alone they received some 5000*l.* or 6000*l.* in silver in a day, that this 5000*l.* or 6000*l.* came to the Bank in about 125,000 pieces, that the various coins had to be separated from each other; the half-crowns, the florins, the shillings and sixpences, the fourpennies and threepennies, had all to be separated one from another. Introduce another coin, and just in proportion as the coin occurred in circulation would be the additional labour required in counting those large amounts of silver. He ventured to say there was not a banking-house in London in which the clerks had not as much to do as they could get through now. The number of clerks must be increased in all the establishments if they adopted this new coin, and some of the banks were now so pressed for room to carry on their business, that the introduction of a new coin would actually involve the necessity, in the great majority of cases, of new premises, to make room for the new clerks. Nor did the additional labour end here. Mr. Minasi, though he had not referred to it that night, yet in his "Penny Wise and Pound Foolish" pamphlet, proposed to have a gold coin of ten times his tenpenny coin, to be called an Imperial, which would be of the value of 8s. 4d. Here, then, would be a new gold coin which, in counting or weighing gold, must be separated from the sovereigns and half-sovereigns; it would weigh with neither. The Bank of England received perhaps some fifty or sixty thousand pounds in gold in the day, making from sixty-five to seventy thousand coins to be counted. The introduction of the new coin would about double the labour of counting—there must, therefore, be an increase of clerks; so it would be at all the other banks. Business must either be retarded or the present hands overworked, or greater numbers employed. Mr. Minasi boasted that his scheme retained every existing coin. Perhaps it did; but it retained them as an inconvenience. The Decimal Association, it was said, withdrew coins—it would withdraw the half-crown, the threepence and fourpence, and so lessen the labour of counting large sums. He (Mr. Moore) did not know what particular advantage was expected to be derived from this 8*s.* 4*d.*, but he could say it would be attended with many disadvantages. In the first place, to cut the die, would cost just as much as that for a sovereign; the work at the Mint would cost as much as for a sovereign. They must have a large surface in proportion to their weight of gold, the wear would therefore be rapid. They could be allowed but a very small margin of overweight. The sovereign had about three-fourths of a grain overweight, the half-sovereign about three eighths, and the eight-and-fourpenny must have not more than about one third of a grain, so that a large proportion would very soon be found light. Mr. Minasi might say they could be made thicker, and with a proportionately smaller surface; they could not know that the present thickness of the coins was the result of experience; it was found to be the thickness which gave best the peculiar ring which so well served to detect whether coin was good or bad. If made thicker, in proportion to surface, that detective ring, which was so important, would be lost. Then came the question of individual loss. They recollected the stir which was made in 1844, he believed, respecting light gold, and the grumblings consequent upon the deductions that were made upon the deteriorated gold coin. But Mr. Minasi, in his eagerness to benefit, as he said, the poor man, forgot that the 8s. 4d., being a smaller coin than the gold at present in circulation would go into the hands of a greater number of people, and, therefore, when another proclamation was issued respecting deteriorated gold coin, the poorer classes would be much more the losers than on any former occasion—losers, too, to a much greater extent than they possibly could be by the alteration in the value of the copper coins proposed by the Decimal Association. The assertion that no change could be made in the existing value of the penny without injury to the poor was based upon the fallacy that the present penny of twelve to the shilling-worth, at least half as much more as its value in uncoined copper, was the only piece of copper money with which there could be any honest dealing. Have a coin worth more or worth less, and universally people would either cheat themselves or be cheated of the difference. There was the assumption, besides, that the penny did now meet with exactitude, in every case, the incessant variation of prices in all articles of ordinary consumption. Dealers in such articles would tell them that it did not meet one in a hundred of such changes, and that the alterations of price were met in small quantities such as the poor purchased in some other way—perhaps there was a smaller herring for a penny at one time than another, or the pound of potatoes had one or two either larger, or not quite so large, as the turn of price might be for or against the buyer. He (Mr. Moore) could imagine a man with plenty of money keeping careless accounts, and not knowing whether he was cheated of a penny or a pound in weight; but the working men were by no means likely to be cheated; they were the best arithmeticians as to pence in the nation, and if those in a higher sphere were as financially accurate, they might no doubt save themselves a considerable amount in the course of the year. But there was another thing which had been overlooked in every proposal to depart from the pound as the chief coin of account—that was the great objection of the English people to do anything in a more roundabout way than was absolutely necessary. If a man could enter a pound in his books in one figure, Mr. Minasi never undertook a more hopeless task than to attempt to make him write 24 or 240 instead of the 1; and it was that love of brevity and conciseness which constituted the essence of the business activity of the English nation. He had been told that enormous advantages were expected from the penny and tenpenny, by bringing about an approximate equality to certain foreign coins. The tenpenny coin would bring us near the French franc, while the Imperial would go to represent the double of the United States dollar. But he would ask could they gain anything by that approximation? What would be the approximation in a considerable sum? There would be 24,000 tenpennies in 1000*l.*, and 25,221 French francs, 55 centimes; so that the approximation would amount to a difference of 1,222 francs, 55 centimes in 1000*l.*; so that there would be a difference of 48*l.* 7*s.* 7¾*d.* in 1000*l.* With regard to American dollars, the case would be similar, although not so bad. There it would be a difference of 15*l.* in the 1000*l.*; the dollar, which was perhaps 4*s.* 2*d.* when Mr. Minasi had calculated, being now 4*s.* 1¼*d.* In his tract, Mr. Minasi had given an example which he appeared to regard as altogether unanswerable to the objection that inconvenience would result from the displacement of the pound as the first coin of accounts—it would be so easy to reduce imperials to pounds—reduce, says the example, 143*l.* to imperials. We were told to multiply by 12 and 2, and the answer was set down 343 imperials 2 argents, as if the multiplication required no figures, could be done at sight, would take no time to perform; the multiplication, even if the 12 and 2 were not written, would require 8 figures; and if they were, it would require 11 figures; so if there were (and it would be within the mark to say there would be) a thousand payments, requiring such calculations, made into the bank in the day, it would require some six or eight thousand figures to be written, and, coupled with the twenty-four having to be reckoned for every pound; and the separation of the tenpennies in counting silver, the imperials in counting gold—entering the imperials in a distinct account, reducing every sum paid into sixpences, and the incessant calculations to be made as to almost every receipt, payment, and entry,—it would probably not be too much to say that it would about double the business in the cash office of every bank in the kingdom. In conclusion, he would suggest that it would get rid of a great deal of confusion as to a decimal system, and the most direct mode of its accomplishment, if the word Decimal—which people very generally did not understand—were not used; and if instead of speaking of a decimal coinage, we were to speak of a common arithmetic system of coins. Every one understood the difference between common arithmetic and money arithmetic. In common arithmetic the figures stood in an invariable relation, and we always had to carry the *tens* from right to left. We wanted to have the same simplicity as to money. We wanted instead of carrying the fours from the farthings to carry the tens; instead of the twelves from the pence to carry the tens; instead of writing two columns in the shilling column, and carrying the tens from the one and the half of the other to the pounds, to have one figure in the shilling column and carry the tens. Thus they would have a system of money arithmetic, not different from the common arithmetic. Let it not be said that the working man could not understand this. There was not a man but would say, "Do your best to bring this about; I cannot spare much time for the education of my children, they must soon begin to earn their own bread, but I like to have them taught." Simplify the teaching of the children, and they would have the thanks of the people at large; and the simplest way was to make the least possible change in fixed ideas of the present system. What we needed was already half done to our hand—we had the pound—we had its tenth, the florin. We wanted a silver tenth of the florin—call it a cent; and a copper tenth of that cent. There was no more simple way of attaining a decimal coinage, and none that would be more readily understood.

The CHAIRMAN said, at the very late hour to which the discussion had extended, he would only offer two or three brief observations by way of summing up. He would not enlarge upon his own opinions on this subject, because they had already been published, but he would advert to one thing in reference to the figures to which allusions had been made, inasmuch as he thought it was not sufficiently insisted upon that the exhibition of figures did not represent the labour of the calculation. Take for example the product of 7 pence by 5. The first part of the work was multiplying 7 by 5=35. The second and more troublesome part of the work was converting 35 pence into 2s. 11d., a new set of figures entirely: in making this change, work was done which did not appear in that exhibition. Had time permitted, he would have adverted to several other matters in relation to this subject, but he would now only advert to one to which no allusion had been made, as a possible difficulty in the way of the scheme which he himself supported,—that was as to the millesimal subdivision of the pound sterling. He believed that some shopkeepers of the lower class, would at first keep an account in shillings and the subdivisions of the shilling, and that was the only difficulty he saw in carrying it through. He thought it likely that those shopkeepers would keep this system of account,—50 mils to the shilling, and 20 shillings to the pound; but that could be got over in time; although he pointed it out as likely to be the most serious difficulty to be encountered in this scheme, he by no means despaired of ultimately getting over it.

On the motion of Viscount Ebrington, M.P., the thanks of the meeting were accorded, by acclamation, to Messrs. Franklin, Minasi, and Reid, for the papers they had read.

The Secretary announced that there would be no meeting on the evening of Wednesday next, it being Ash Wednesday; and that on the 28th inst., the paper to be read was "On the Iron Industry of the United States," by Professor John Wilson, F.R.S.E.

IS "UNDER-GROUND MANURING" A NOVELTY.

The following letter appeared in a recent number of the *Gardener's Chronicle*:—

Sir,—I see by the *Gardeners' Chronicle* of Saturday last that a Mr. Wilkins has taken out a patent for underground manuring, and that he has had ability enough to induce the good people of Oxford to subscribe a sum of money to carry out what he calls his experiment. As the gardeners near Chelmsford have been in the habit of using this plan for the last eight or ten years, in consequence of the late Mr. Wix, solicitor, of Chelmsford, who was an excellent gardener, having got the prize there for early celery grown in this way, I should like to know if a toll is now to be levied upon those who have long been accustomed to the use of this mode of using liquid manure. My gardener tells me it is now eight years since it was so used by my desire. Mr. Wix's plan is to place two rows of common land draining pipes one on each side of the celery, and the liquid is introduced by the upright pipe, as described in Mr. Wilkins' plan. The objection to any permanent laying down of pipes is that it is well known by agriculturists, although probably not by a chance audience either at Oxford, Reading, or London, that the roots of mangold wurzel run a long way for their food, and that, consequently, these roots would soon block up the pipes; and if they were kept out by cement or collars, or any other scheme, the object of introducing the liquid manure in a proper manner would be most certainly defeated, as you say it can never be adopted to any extent except in gardens, and I confess I see no advantage, after eight year's experience (of this now called new science), in having the pipes permanently fixed. I am decidedly of the contrary opinion. I must enter my protest against this scheme being considered a novelty. Although Mr. Wix has been dead some years, it might easily be ascertained when, where, and how he adopted the plan. As this scheme is altogether upon a contrary principle to that adopted at Tiptree Hall, no doubt it is open to try various extensions of this mode of growing plants. Any man with a few pipes may easily satisfy himself of the advantage of growing celery by this plan. I have no doubt of the truth of all the circumstances stated by Mr. Wilkins; I only enter my protest against its being considered a novelty. If you think it worth while, you are at liberty to state what I have said in the *Gardeners' Chronicle*.

J. T. TYRELL.

Boreham House, January 29.

⁂ Mr. John Roberts has pointed out that the extract taken from page 10 of his pamphlet, and appended to his letter which appeared a fortnight back, refers to "Asparagus," and not to the "Culture of Celery," as alluded to in his letter. It was the woodcut of the latter that was in page 10, and not the description.—Ed.

IMPORTANT TO HECKLERS.

The following letter was addressed to the Editor of the *Dundee Advertiser*:—

Sir,—My attention has lately been directed to an article in No. 48 (December) of *Chambers's Edinburgh Journal*, entitled Industrial Pathology, in which it was most gratifying to find that the pernicious effects to health in the prosecution of certain trades and professions had in many instances been counteracted by the adoption of very simple means: it also stated that the Society of Arts, with praiseworthy zeal, had taken up the matter, and appointed a committee to correspond with working men whose occupations were detrimental to health, in order, if possible, to discover some means for removing the cause. Now, Sir, it occurred to me that the trade with which I am connected, which is that of flax-dressing, has long laboured under certain disadvantages, the most serious of which is being constantly surrounded by a dense atmosphere of decayed vegetable matter, in the shape of dust or stour, the baneful effects of which any one acquainted with the statistics of the flax-dressing trade well knows, for it is a fact that, with comparatively few exceptions, such is its prenicious effects on the health, and I am also afraid on the morals, that a man, when he ought to be at his best, if left to his own exertions, either finds a premature grave or sinks into the unendurable condition of a pauper. Such a state of things, since ever I remember, has always been mourned over when too late, and, so far as I know, no remedy was ever sought; indeed it was just looked upon as one of those things that could not be helped. In the hope, therefore, that there might be an efficient remedy for this evil. I sent a note to the Secretary to the Society of Arts, pointing out our disadvantages, and requesting him to insert it in the Journal of the Society. He, in the kindest manner, complied with the request, when it was promptly noticed and replied to by that eminently philanthropic gentleman, Dr. Elliot, of Carlisle, and I cannot do better than let the Dr. speak for himself:—

"Carlisle, 15th Jan., 1855.

"Dr. Elliot, of Carlisle, having seen in the *Journal of the Society of Arts* a communication signed John Smart, Dundee, respecting Industrial Pathology, and asking for suggestions to protect flax-dressers against the effects of the stour inhaled during work, has to offer an infallible and ready safeguard against the very serious evil complained of. The remedy is to adjust a slight frame of copper wire to the face, including the nose and mouth, leaving the eyes free; cover this frame with wire gauze of large mesh, and over all sew a ply of thin silk; let this mask fit close round the edges and under the chin, and stand off from the mouth and nostrils an inch or more, and let the wearer be utterly indifferent to the novel appearance, and he may work amid all the stour of all the flaxmills of Dundee and breathe as pure an air as if no stour existed. Such a mask will enable the wearer to work the finest building stone with impunity, or to go through the dense smoke of a conflagration breathing freely while the unprotected are choking."

I therefore lost no time in personally testing the efficacy of the protector, and I am happy to say that the result exceeds my most sanguine expectations, for it would be difficult to find words to express the comfort and benefit I have derived from it. And I am aware, Mr. Editor, that

there are very many in a community such as this to whom the adoption would be most invaluable, and it is for this reason that I have requested you to give this publicity. Trusting that the importance of the subject will be deemed a sufficient apology for trespassing on your valuable space, I am your obliged,

JOHN SMART.

South Dudhope Mill,
Dundee, Jan. 26, 1855.

Home Correspondence.

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STATISTICS OF THE IRON MANUFACTURE.

Letter II.

Sir,—In a notice of my work on the "Iron Trade," in the *Midland Counties Herald*, Nov. 30, 1854, the reviewer says:—"It is remarkable, considering the almost countless uses to which iron is applied, and the services which it has rendered to manufacturing and agricultural industry, to the social happiness and material comfort of a large portion of the human race, and to the arts of war and peace—of which the existing system of rapid locomotion may be instanced as indeed a 'great fact'—that no other work of a similar kind to the present should have been undertaken. The subject is one replete with interest 'in a general as well as in a commercial point of view.'" This is the fact as regards the history of the iron manufacture in this country, that little has been done in the way of regular statistics, but in France several notices, which may be almost called histories of the iron trade, are published.

In 1784 the Baron de Dietrich was appointed to make a general survey and report on the state of the mines and manufactures. His report was of considerable length, and went fully into the iron manufacture, but the quantity made at that time was very limited. There is the "Enquête sur les Fers, 1829."

On the 24th April, 1831, M. Auguste Perdonnet read his report to the Society, "Du Bulletin Universal des Sciences et de l'Industrie," as to what improvement has the art of making iron received in France during late years; and the "Résume des Travaux Statistiques de l'Administration des Mines." The annual report of the state of the iron trade, by M. Hiron Villefosse, are, I believe, continued by M. de la Play. In proof of the information to be derived from French sources, we have Mr. G. R. Porter's statistical view of the recent progress and present amount of mining industry in France, published about the year 1840.

In America there is the Census, which enters into many particulars of the iron manufacture; and the various committees appointed for the investigations of facts for the settlement of the tariff, give abundance of materials relating to its various developments.

Then there is the report of Prof. John Wilson, F.R.S.E., on the "Iron Industry of the United States," noticed in the *Journal of the Society of Arts*, October 6, 1854, No. 98; and Prof. Wilson is to read a paper before the Society, on the same subject, on the 28th of February next.

In Sweden, the College of Mines gives the needful information; and last year Mr. G. J. Wærn, Jun., a member of the Swedish Diet, wrote a valuable treatise on the repeal of the taxes on iron in Sweden.

In Russia it is easy to obtain the extent of make and exports.

In Belgium and the German States information is also published.

With regard to Great Britain, there have been occasional returns of the make of the furnaces when alterations in the duties have been under consideration, the most important of which are "The Explanatory Remarks on the Statement Transmitted by the Hon. N. Vansittart, and that prepared by the Deputation of the Iron Trade." This was in 1806, when Lord Henry Petty proposed laying a duty on pig iron, and the statement prepared by Mr. Finch of the quantity of pig iron made in Great Britain in 1823 and 1830.

There are also the Parliamentary returns of the exports and imports of iron from the year 1710. I was fortunate enough to obtain official copies of the early returns from the library of the House of Commons, shortly before the Houses of Parliament were burnt down, and the originals of these papers were destroyed. I therefore sent the copies to the Board of Trade, for which I received the thanks of the Earl of Ripon, at that time President.

In the *Star*, evening newspaper, August 1839, was published an account of the "Rise, Progress, and Present Extent of the Production, Exportation, and Consumption of Iron in Great Britain," extracted from "Marshall's Statistics of the British Empire."

In several Encyclopædias, Scientific and Commercial Dictionaries, there have been valuable and interesting papers on the Iron Manufacture, and also in No. 106 of the Library of Useful Knowledge.

In 1841, I published the first edition of my history of the iron trade, which I believe is the only work (since the days of Pliny), in which an attempt has been made to give a general account of the manufacture throughout the world. At that time the make was about 1,300,000 tons; when my new edition was published, at the end of last year, it amounted to about 3,000,000 tons; but I am not aware that any account has been published respecting this great increase, and the channels through which it has been consumed.

There are two papers bearing on the subject of make. The first a valuable lecture, read by Mr. S. H. Blackwell, before the Society of Arts, on "The Iron-Making Resources of the United Kingdom," and the second, "Statistics of Commerce," by Mr. Braithwaite Poole.

I have given this sketch, to show that these inquiries are not much thought of in this country, where the iron manufacture in its various branches is the most important of all manufactures to our prosperity—and that comparatively little has been done to make the most of the information, which might be collected from well arranged statistics.

In the communications I have had with individuals connected with the trade, they all agree that it is a species of information which would be very valuable, and that government ought to take it up. An ironmaster to whom I wrote in reply, says:—"This is not the first effort that has been made to establish some species of machinery, whereby an authentic return of the progress and fluctuations of the iron trade could be shown. The failure has arisen chiefly from the indisposition of government to take the initiative in granting funds for this object—and the apathy of the trade itself in the several districts." But it appears to me that such an inquiry as the present has as much, if not more, interest for the buyers and consumers, than even for the ironmaster. I do not consider that it is necessarily a very expensive inquiry—and it might be done to some extent, if not altogether, without the assistance of government; but no doubt, such a sanction as that of government would of itself materially assist, in some quarters, in obtaining the required information. If this assistance cannot be obtained now, it may be hereafter, and in the meantime, it might receive from the public, and more particularly that part of it which is interested in the trade, (and which is not), sufficient support to commence the inquiry.

I remain, your faithful servant,

HARRY SCRIVENOR.

Liverpool, 30th January, 1855.

THE DISCUSSION AS TO WATER SUPPLY.

Sir,—In your report of the discussion that followed the reading of Mr. Homersham's paper, "On the Chalk Strata considered as a Source for the Supply of Water to the Metropolis," there are some errors as to what I said on that occasion, of sufficient importance to induce me to request you to allow me an opportunity of correcting them. Perhaps the best method of doing so will be to give you, in a concise form, the substance of the first part of my remarks, in which chiefly the mistakes have occurred.

I said that the basis of Mr. Homersham's calculations appeared to be this: That a certain amount of rainfall took place annually, nearly the whole of which was absorbed into the soil in chalk districts, while only a certain portion was given out by the springs and rivers; and, as Mr. Homersham would not believe that the remainder was carried off by evaporation and vegetation, he assumed, without any direct proof, that a very considerable portion of the rainfall found its way out of Hertfordshire, and other inland counties, by underground currents to the sea, and might be intercepted in its course without injury to anyone. I then showed that, by gauges constructed for the purpose of ascertaining the quantity of rainfall that percolated to the springs, it was found that on an average of 19 years, out of an annual rainfall of about 26 inches, less than 9 inches descended to a depth of 3 feet below the surface; and that, taking this quantity as percolating to the springs throughout the area of the gathering ground of the River Gade above Hunton-bridge, it gave, by calculation, a supply of water that coincided as nearly as possible with the actual average flow of the river at that point. This proved that no water escaped from this district, by any underground currents, to the sea, as the river carried off all the rainfall that was not consumed by vegetation or evaporation. But, supposing that some water did escape in the way suggested by Mr. Homersham, it was evident that sinking a well at Watford would not close the outlets from the chalk into the sea, and that, whatever outflow into the sea at present exists, would still continue undiminished, and it therefore followed that whatever amount of water was pumped from the chalk at Watford for the use of the metropolis, would not be so much "intercepted" on its way to the sea, but so much abstracted from the reservoir supplying the springs and rivers of that district.

The other points I mentioned are given with sufficient accuracy, but with regard to Mr. Homersham's attempt to cast discredit on the gauge employed by Mr. Dickinson for the purpose of ascertaining the annual infiltration to the springs, I may take this opportunity of stating that *no* peat was mixed with the soil with which it was filled, and through which the rain percolates; and that most of Mr. Homersham's assertions respecting it are equally remote from the truth.

The experiment with bare chalk was made in a cast-iron cylinder, 3 feet deep, and 18 inches in diameter, sunk in the ground, and no water descended to the depth of 3 feet in the chalk from February to December of last year, notwithstanding there was a fall of 3½ inches of rain in one month.

My residence is as given below, and not at Watford.

I am, sir,
Your obedient servant,
JOHN EVANS.

Nash Mills, Hemel Hempsted, Feb. 3, 1855.

February 3, 1855.

Sir,—Referring to the paper read before your Society on Wednesday last, I find in your report of the discussion I am made to state that the quantity of water obtainable from the chalk under London was 500,000,000 to 600,000,000 gallons *yearly*, whereas I said that if the *daily* abstraction of only 5,000,000 to 6,000,000 gallons of water had caused so serious a depression of the springs under London, as evidenced by the diagram presented by me, what would have been the depression if 50,000,000 to 60,000,000 gallons of water (the minimum daily supply to the metropolis) had been abstracted?

Your correction, as above, will oblige,
Your's very truly,
FREDERICK BRAITHWAITE.

THE SMOKE NUISANCE.

Sir,—Will you allow a comment on a point urged by Mr. Muir, in his valuable and interesting paper, "On Smoke":—

"Once more I have to repeat that the smoke nuisance involves the consideration of *dimensions*, not *inventions*, and the sooner this truth is recognised and acted upon the sooner will our cities be freed from the nuisance of smoke, and our Government freed from the reproach of attempting to do by sheer force what could have more speedily and economically been done by instruction." This emphatic peroration of Mr. Muir's paper (Journal Soc. Arts, v. iii., p. 142), is not likely to stay the progress of improvement in the direction to which it refers, but there is in its words a retrograde or obstructive spirit, which, I am sure, belongs not to its author. It is, therefore, worth remarking, for the sake of inventors, on whose sanguine temperaments this confident assertion may fall somewhat chilly, that the distinction here drawn to their prejudice, has more of rhyme than of reason in it.

Mr. Muir states that furnaces of the ordinary construction, having their several parts properly proportioned, as respects dimensions, will effectually and smokelessly burn their coal. This is, doubtless, the fact. It is probable that any form of furnace that can be conceived, however strange, would perform correctly, if some certain dimensions were given to its several parts. Evidence, therefore, that such is the case with the many given kinds of furnaces is no proof that it is the best, or even more than tolerably good. To discover these requisite dimensions is, in any case, a business of invention. It is just as much invention to find out how to make a furnace, with a given general form of dimensions, which shall work well without additional apparatus, as it is to discover how to add to a badly constructed furnace a contrivance that shall make it smokeless, or to devise a furnace of new form that shall burn with propriety. It is just as much invention to find out a good size, as it is to find out a good shape.

It was just as truly creation to make a shark that could breathe by gill-filtration as it was to construct a seal that could breathe by lung-spiration — as truly creation to contrive a whale as a horse. Both shark and seal can breathe — both whale and horse enjoy locomotion. Gills can work as well as lungs, tail as well as legs, when the dimensions are appropriate. The whole was a very good contrivance, but we may be thankful that creation did not stop there. Let us still hope for something better than whale-like boilers, and palœosaurian furnaces. There can be no doubt that the whole art of the application of heat to human purposes is only in its infancy; that of the generation of steam by coal in embryo. Good is the embryo state, good the infancy, both of species and of class, both of animal and of instrument. But creation rested not till man was made: and invention will not rest till the perfect furnace is evolved.

Touching smoke, Mr. Muir seems to think that it is of no consequence to understand the nature thereof. He seems to turn but a cold practical eye upon theory. It it curious that people seem not to know what smoke is: I think it is also unfortunate, for, if they did, they would have got rid of it before this time. I may be allowed, perhaps, if not for the utility, at least for the interest of the matter, to point out a fact which is not usually noticed. There are two very different kinds of opaque smoke, whereof one is generally considered to constitute the whole opacity of coal smoke, while the other, which really forms by far the larger portion of it, is ignored. There are two sorts of substances:—The one is carbon, lampblack, derived from the decomposition of the vapour of tar; the other is tar-vapour, in the vesicular or fog state. This latter voluminous nuisance may be seen issuing from coal in a fire-place, or mixed with invisible gases, from the end of a tobacco pipe used as a coal retort. It may be smelled on Hungerford-bridge, when the breeze is from the east and the steamers are stoking at the pier. It might be felt in the eyes and throat, when London fogs are green.

The only cause of smoke is the distillation of the fuel, and the production of tar, faster than air is supplied for the burning of it. Some contrivance, either of dimension or of form, is necessary for this supply. There are many such contrivances that are good. The best must be that which combines, in the highest degree, simplicity with effectiveness.

I am, sir,
Yours, &c.,
C. B. MANSFIELD.

THE F.S.A. QUESTION.

Sir,—The F.S.A. controversy reminds me of a passage in our Shakspeare, who has gentle reproof for every folly:—

> For who shall go about
> To cozen fortune and be honourable
> Without the stamp of merit! Let none presume
> To wear an undeserved dignity.

Now dignity would be undeserved, if it were worn by him or them who had done nothing more for art or science than to subscribe some forty shillings to a scientific society, or who had patronised scientific meetings by his or their presence. Marks of honour bestowed on men of merit (as a Herschel or Brewster), who have done something for science that most men cannot do, lose much of their value when they are bestowed upon or appropriated by commonplace every-day men. A city knight, or a city baronet, looks very ridiculous when walking *pari passu* with a Sir De Lacy Evans. I hope we shall hear no more of the F.S.A. question.

Yours,
I. H. E.

February 10, 1855.

THE DISCUSSION ON THE SILK-WORM.

Sir,—" Palmam qui meruit ferat"—In your report of the discussion which followed the reading of my paper last Wednesday evening on 'The Silk-worm and its Products,' I now notice that some of the gentlemen, in their kind allusions to the subject, ascribed the entire merit of the new process of silk reeling to me.

As I have no desire for any undue eulogium, I beg to state that the origin and leading feature of the invention are due to my colleague, Mr. Chadwick.

Yours, faithfully,
THOMAS DICKINS.

Spring Vale Works, Middleton,
Feb. 13th, 1855.

CATTLE INSURANCE.

Sir,—My attention has just been called to an observation in Mr. Mechi's paper " On British Agriculture," published in the Society's Journal of the 8th Dec. last, namely, " that on account of the imperfect homsteads in England, farm stock cannot be insured against death from natural diseases at less than twenty per cent." Now as this statement is evidently made in error, and may prevent many from availing themselves of the protection of insurance, allow me, as one of the auditors of an Insurance Company, that has, at the present moment, current insurances on its books representing several hundred thousand pounds' worth of live stock, to say that the rates are as follows, and that they have never been more during the ten years' existence of the company:—

Feeding Stock .	£2	10	0	per cent.
Dairy Cows . .	3	2	6	,,
Work Horses . .	3	6	8	,,

Were insurance more general, even these rates could be much reduced, and if all the agricultural stock in the United Kingdom were insured, it could be safely done at a premium of one pound per cent., which would realise an annual income of 3,500,000*l*.—Your obedient servant,
THOS. SCOTT.

5, Charing-cross, Feb. 14, 1855.

Proceedings of Institutions.

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Bedford.—The Rev. Frederick Cox, Curate of Woburn, gave an interesting lecture at the Literary and Scientific Institution, " On Geology," on Thursday the 6th instant, T. H. Barker, Esq., M.D., in the chair. The previous lecture evening was occupied by Mrs. Grosvenor, with a musical entertainment, entitled the " Melodies of Ireland and Scotland," which was very much applauded. Sir Hamilton Seymour, Bart., late Ambassador to Russia, has forwarded 26 volumes of useful books for the Library; and in a note to the Secretary says:—" They are intended as a very humble contribution to the collection of a Society amongst whom I spent a very agreeable evening, and in whose well-doing and success I take a lively interest."

Derby.—The Lecture Season at the Working Men's Institute was opened on the 10th of January, by Dr. Spencer T. Hall, who delivered a discourse on " Phrenology and Physiology;" Mr. W. Hirst, the treasurer, in the chair. On the 24th, Mrs. Clara L. Balfour, delivered a lecture on the " Female English Poets of the Present Century." Mr. Llewellyn Jewitt, F.S.A., introduced the talented lecturess, who, in the course of her address, spoke of the tenderness of Mrs. Hemans, the enthusiasm of L.E.L., the gentleness of Mary Howitt, and the vigour of Eliza Cook, with touching allusions, too, to Mary Russell Mitford, just departed, Mrs. Browning, and other writers—giving many beautiful illustrative quotations from their works. The lecture was attentively listened to by an admiring audience, and at its close a vote of thanks was cordially passed to Mrs. Balfour. The next lecture will be delivered by the Rev. Thomas Hincks, of Sheffield; and will be followed by Mr. Llewellyn Jewitt, the Rev. R. Lloyd, the Rev. J. Whewell, and Mr. Richard Keene, and Mrs. Balfour will close the present course of lectures on the 26th of March.

Gateshead.—On Saturday evening, the 6th ult., the members of the Washington Chemical Works Reading Institution and Library, gave a public concert, which was well attended. Mr. Pyburn, the leader of the Newcastle Harmonic Society, officiated as conductor. An excellent choir entertained the audience with many gems selected from Mendelssohn, Mozart, and other celebrated composers. The Mayor of Newcastle, J. L. Bell, Esq., president of the Institution, proposed a vote of thanks to Mr. Pyburn and his party. That gentleman, in reply, said, that it was always his object to select that class of music which was calculated to exercise a refining and elevating effect on the public mind, and he had reason to believe that the time was fast approaching when the public taste would attain a higher standard, and be enabled to appreciate and prefer the highest branches of music. On Saturday evening, the 13th ult., a lecture was delivered by Mr. John Watson, treasurer of the Institution, " On Electricity, and its Application to the Working of the Electric Telegraph; also to Submarine Blasting." Mr. R. Buddle, secretary of the Institution, presided. The lecture-table was well furnished with apparatus, which was brought into operation, short telegraphic messages being deciphered by the juveniles.

Hastings.—A quarterly general meeting of the members of the Mechanics' Institution was held on Wednesday, 7th Feb., Rev. J. Stent, one of the Vice-Presidents, in the chair. The Report of the Committee for the past quarter gave a satisfactory account of the state of the Society; 89 members had been elected during the quarter; the number of members was 394; the balance in the treasurers hands was 15*l.* 19s. 1d.; receipts, 39*l.* 7s. 9d.; expenditure, 52*l.* 14s. 6d. The *Globe* evening paper and two daily papers were taken in, and the reading department of the Institution was in a satisfactory state. The Committee has decided upon opening the Institution at 11 a.m., instead of 12 at noon. The Committee's report was received and adopted. A Building Committee, which had been appointed in November last, for the purpose of making arrangements for the purchase of the building occupied by the Literary and Scientific Institution, reported the failure of their negotiations, the members of the said Institution having, according to a communication from their secretary, resolved to reject the offer of the Committee to purchase their *nice* building and fixtures for the sum of 1400*l.*; the Committee, however, recommended that no exertions should be spared on the part of the Mechanics' Institution, to obtain other and more commodious premises. The report was received, and the Building Committee was re-appointed. The Local Museum Committee also presented a report, setting forth that a Geological Catalogue had been commenced, and that many species, geological and botanical, had been collected, and the Committee were only waiting for a locality in which they might be placed, so as to form a nucleus for the proposed museum.

London.—An interesting lecture was delivered before the members of the Jews and General Literary and Scientific Institution on Thursday evening, the 1st instant, by Mr. P. L. Simmonds, "On the Products of the Forest, Considered in their Relations to the Arts, Commerce, and Manufactures." The lecture was illustrated by an extensive and very valuable collection of all the products entering into commerce, furnished by him, particularly by specimens of fancy woods in their raw and manufactured state; a collection of the oils of commerce, and their processes of transformations and uses, with one of the patent Crimean stoves, heated by cocoa-nut fuel, furnished by the proprietors of Price's Candle Company; elastic gums, resins, barks, seeds, canes, &c., of all kinds, were shown and explained, and a vast amount of new information afforded.

London Domestic Mission.—On Monday, the 29th of January, Jelinger C. Symons, Esq., B.A., one of H.M. Inspectors of Schools, delivered a lecture "On Practical Education," at the Cripplegate branch of this Institution. As the audience was mainly composed of members of the reading room, pupils of the adult evening classes, Sunday-school teachers, and others immediately interested in the subject of practical education, it is hoped that the lecturer's good seed may have fallen into fruitful ground. Mr. Symons showed that an education which would develop the moral, religious, and intellectual faculties of children and adults in such a way as best to fit them for the everyday duties of common life, was still wanting. He pointed out, only too truthfully, the defects and inefficiencies of the old system of training, whose beginning and end seemed to consist in the bare knowledge of reading, writing, and arithmetic; mentioned many of the difficulties that now bar the way to a better state of things, and showed many easy and simple methods of obtaining results in education, compared with which the old plan, still in common use, showed anything but to advantage. The lecturer boldly and unhesitatingly declared himself in favour of a religious training for day schools, apart from any peculiar sectarian dogmas, and in the utterance of this sentiment he seemed to be warmly seconded by the meeting. He considered the masters, and not the ministers, the proper persons to undertake this work, which should not be, as it were, something added to, but a part and parcel of, the daily training of each child. Mr. Symons next touched upon some of the defects in schools for the higher classes, and censured the practice of spending so much valuable time in cultivating a knowledge of French and Latin—dead languages—and by ladies, in trying to learn the pianoforte, whether they have a natural taste for it or not; all this in servile obedience to the tyrant "fashion," who rules over us English with such an iron rod. He wished he could do something to tread him down a little. He then briefly, but forcibly, alluded to the great curse of the country —"drink"—and spoke with earnestness of the necessity of warning men from this at all hazards. He stated plainly what the Mechanics' Institutes, Athenæums, and Reading Rooms needed to make them popular with the people; in spirit, less exclusiveness and more "brotherly kindness;" in dress, less fashion, and more fustian; in books, a greater readiness and aptitude to meet the tastes of the people. He mentioned the probability of the newspaper stamp being speedily repealed, and the consequent results likely to arise from it, good and bad. He concluded by inviting the meeting to discuss the points he had touched upon in the course of his lecture. In consequence of this invitation a short discussion ensued till ten o'clock, during which some other valuable experience was elicited, when, the time having come for closing the meeting, cordial thanks were voted to Mr. Symons, to which he briefly responded, and kindly promised, some future day, to repeat his visit.

Nottingham.—The Annual Meeting of the members was held on the evening of the 30th ult., Mr. A. Morley, one of the Vice-Presidents, in the chair. From the report read by the hon. secretary (Mr. E. Renals), it appeared that the number of members was 1,132, being a slight decrease as compared with the preceding year. The issues of volumes during that period had been 41,283. More than 120 members are connected with the educational classes of the Institution. The lectures had been well attended, especially by members of the various operative libraries in the town, who are admitted free to the regular course of lectures. Professor Partington's lectures "On the Progress of Science," to which working men were admitted on payment of one penny, were highly spoken of in the report. An outlay of 400*l.* had been incurred in the improvement of the organ, for the purpose of rendering the instrument more serviceable in getting up popular concerts. The receipts had exceeded 600*l.*, and the balance in hand 8s. 1d. On the whole the report gave satisfactory evidence of the progress of the Institution.

Poole.—The fourth Annual Tea Meeting and Festival of the Mechanics' Institute was held at the Town-hall, on the evening of New Year's Day, when a large number of the members and friends of the Institute assembled to partake of the physical, social, and intellectual enjoyments of the evening. After the tea had been cleared away, the chair was taken (in the absence of W. Pearce, Esq., the President) by Mr. A. S. Hodges, one of the Vice-Presidents. The honorary secretary, Mr. G. G. French, read the list of lectures for the ensuing half-session, which was as follows:—Professor W. G. Allen, (late professor of the Greek language and literature at the New York Central College), on "American Orators and Oratory." The Rev. Professor Waterman, A.M., on "Ancient Egypt," 2 lectures: I. "Its Hieroglyphic History," II. "Its Testimony to the Bible." The Rev. E. H. Bickersteth, of Hinton Martell, "Astronomy and Christianity." The Rev. E. R. Conder, A.M., "Æschylus and the Greek Drama." The Rev. D. Griffith, of Wareham, "History of the English Language." The Rev. Professor Waterman, "Canada, as a Field for Emigration." Very interesting addresses were delivered by the Chairman, the Revs. Professor Waterman, E. R. Conder, and J. H. Osborne, and by Messrs. Curtis, Harker, and Mare, interspersed with an appropriate and judicious selection of vocal and instrumental music by Mr. J. Shormey, who presided at the pianoforte, Miss Norton, aged 8 years, his pupil, and by Messrs. Holloway, Delbin, Kellaway, Weeks, and Eaton. Votes of thanks were passed to Mr. Shormey and his friends for their kind services, and to the Mayor for the use of the Hall, followed by the National Anthem, when the crowded assembly broke up, apparently highly gratified with the evening's proceedings.

Royston.—The General Annual Meeting of the members of the Mechanics' Institute was held at the Reading-room, on Monday evening, 22nd January, 1855, at 8 o'clock. The chair was occupied by the President, V. Beldam, Esq., who having opened the meeting, called upon the Secretary, Mr. John Warren, to read the report. From this it appeared that the number of members was 255, the same as in the preceding year, and not including 9 life members. The income was 94*l.* 17*s.* and the expenditure 98*l.* 13*s.* 4*d.*, leaving a balance on the wrong side, of 3*l.* 16*s.* 4*d.* This deficiency arose from the unexpectedly small sums realised by the sale of non-subscribers' tickets for recent lectures. The report then went on to state the subscriptions paid by the different classes of members, and gave a classification of them, with a table showing the time they had severaly belonged to the Institution. During the past year fourteen lectures were delivered—four of these being for the benefit of the Building Fund. The Library had been increased by 97 volumes—63 by purchase, and 34 by donation. It now contains 972 volumes. The number of issues and renewals had amounted to 2490—the average issue, per evening, being 48, as against 27½ in the preceding year. The Reading Room had been attended, on the average, each evening by nearly 22 persons; in 1853, only 14, and in 1852, but 10 availed themselves of this privilge, which can be obtained at the low rate of 2s. per annum. The amount deposited in the Savings Bank was 25*l.* 12*s.* 4*d.*, and the number of depositors 28. After votes of thanks to the Secretary, the Librarian, and the Chairman, the meeting separated.

Rye, Sussex.—A change has taken place recently in the management of the Mechanics' Institution, which has been productive of great advantage to it—as the number of members has been doubled within two months. Endeavours are being made to obtain the assistance of eminent lecturers, so that the increased interest felt in the Institution may be sustained. W. A. Mackinnon, Esq., M.P., has extended his support to the Institution.

Sevenoaks.—The Fifth Annual General Meeting of the Literary and Scientific Institution was held on Thursday, Jan. 25th. J. Rogers, Esq., of Riverhill-house, one of the Vice-Presidents, took the chair. From the report which was read by the secretary, it appeared that there were 353 members, being a decrease of 75 from last year. This, however, was satisfactorily explained. The Committee have purchased during the year 126 vols. of books, at a cost of 38*l.* 12s. 8d. The number of vols. now in the library is 1697. The issues have amounted to 7649 vols. Fourteen lectures were delivered; a new catalogue has been published, and a French class formed in October last. Prizes were offered to members for the three best abstracts of two-thirds of the lectures, and also for the two best essays "On the Knowledge most Useful to the Working Classes, and how best to obtain it." Four essays were sent in, and the successful candidates were: 1st prize, Mr. R. Barling; 2nd prize, Mr. J. F. Bowen. No change has taken place this year in the election of officers, except that R. H. S. Smith, Esq. was placed on the list of Vice-Presidents, and the Rev. J. Mountford elected a Vice-President in the room of the Rev. J. Gregory, who has left the town. Mr. H. Allwork was elected hon. librarian, as Mr. J. S. Palmer is placed among the Committee, which is as follows:—Messrs. J. B. Anquatil, J. Franks, E. Arnold, Isaac Cooke, S. Cooke, G. Cronk, J. Newington, J. F. Wilson, Wm. Bird, J. S. Palmer, W. Franks, J. Bligh. After the transaction of the formal business, J. Carnell, Esq., one of the Vice-Presidents, rose to present a testimonal, in the shape of a silver inkstand, from the lady members to the secretary, Mr. J. Fitness. That gentleman, in replying, begged the ladies to accept his heartfelt gratitude for their kindness, and stated that he had consented to take the office of secretary another year, hoping to be increasingly useful.

Westerham.—The Committee of the Literary Institute, at their last meeting, resolved to avail themselves of the General Interchange of Privileges between the Institutions in Union with the Society of Arts.

Whitchurch (Salop.)—The Rev. J. C. Richmond, of the American Episcopal Church, who has recently returned from the Danubian Principalities, and from a long sojourn in the East, has been lecturing, at the instance of the Mechanics' Institute, on the "War in the East," for the benefit of the Patriotic Fund, also on the "Holy Land." The lectures displayed a vast knowledge of Oriental life, a thorough personal acquaintance with the topics selected, and were exceeding valuable to all who have any acquaintance or desire to possess any knowledge of those interesting regions which are apparently destined to occupy so much of the attention of the present generation. On the evening of Thursday, the 18th of January, a lecture was given at the Mechanics' Institution, by Mrs. Clara Lucas Balfour, "On the Moral and Intellectual Influence of Woman on Society," which met with the most entire and unqualified approbation of a numerous audience.

MEETINGS FOR THE ENSUING WEEK.

Mon. British Architects, 8.
Chemical, 8.
Statistical, 8. Mr. W. Newmarch, "On the Loans raised by Mr. Pitt during the first French War, 1793—1801; with some Statements in defence of the Methods of Funding employed."
Tues. Royal Inst., 3. Professor Tyndall, "On Electricity."
Civil Engineers, 8. Mr. E. E. Allen, "On Steam and Sailing Colliers, and the mode of Ballasting."
Pathological, 8.
Linnean, 8.
Wed. Geological, 8. Prof. Ramsay, "Evidences of the Occurrence of Glacian Action in the Perennian Period."
Thurs. Royal Inst., 3. Mr. Donne, "On English Literature."
Numismatic, 7.
Antiquaries, 8.
Royal, 8½.
Fri. Philological, 8.
Royal Inst., 8½. Mr. John Dickinson, "On Providing an additional Supply of Pure Water for London."
Sat. Royal Inst. 3. Dr. Gladstone, "On the Principles of Chemistry."
Royal Botanic, 3¾.
Medical, 8.

PARLIAMENTARY REPORTS.

SESSIONAL PRINTED PAPERS,

Delivered on 7th February, 1855.

Par. No.
41. Metropolitan Improvements—Statement.
Agricultural Statistics (Scotland)—Report.

Delivered on 9th February, 1855.

44. Cathedral and Collegiate Churches—Return.
46. Coinage—Account.
27. Deficiency Bills, &c.—Return (a corrected leaf).
19. Bill—Bills of Exchange.
Turnpike Trusts (Scotland)—Abstract of the Generel Statements of Income and Expenditure.

PATENT LAW AMENDMENT ACT, 1852.

APPLICATIONS FOR PATENTS AND PROTECTION ALLOWED.

[*From Gazette, Feb. 9th*, 1855.]

Dated 12th December, 1854.

2611. R. Larkin, 2, St. John's-villas, Highbnry—Locks and keys.

Dated 16th January, 1855.

109. U. C. Choisnet and C. E. Giajola, Birmingham—Moderateur lamps.

Dated 19th January, 1855.

152. M. Delcamp, Paris—Apparatus for advertizing.

Dated 22nd January, 1855.

166. R. Johnston, Aberdeen—Soap.

Dated 23*rd January*, 1855.

172. J. Coates, Salford—Railways.
174. W. Dray, Swan-lane—Chaff-cutting machine.
176. J. Fenton, Low Moor—Axles, shafts, rods, and bars.

Dated 24*th January*, 1855.

178. R. Laming, Carlton-villas, Maida-vale—Ammonia.
179. J. Webster, Birmingham—Changing the direction of and multiplying motion.
180. Sir J. C. Anderson, Bart., Fermoy—Steering ships.
181. C. W. Tupper, 3, Mansion-house place—Coverings for buildings.
183. A. E. Schmersahl and J. A. Bouck, Miles Platting—Sulphuric acid.
184. W. E. Newton, 66, Chancery-lane—Raising and forcing fluids.

Dated 25*th January*, 1855.

185. J. Gregory and A. P. How, Mark-lane—Steam engines.
186. W. Winstanley and J. Kelly, Liverpool—Pump gear.
187. B. Samuel, Sheffield—Knife handles, umbrella and stick handles, door knobs, &c.
188. H. B. Powell, Lyndhurst—Precautionary keel.
189. C. F. Burnard, Plymouth—Superphosphate of lime.
190. A. W. Anderson, Birmingham—Exhibiting advertisements.
191. J. H. Johnson, 47, Lincoln's-inn-fields—Electric telegraphs. (A communication.)
192. J. H. Johnson, 47, Lincoln's-inn-fields—Cotton machinery. (A communication.)
193. G. H. Bursill, Ranelagh-road, Thames-bank—Cases for explosive substances.
194. R. A. Brooman, 166, Fleet-street—Power accumulator to be used with hydraulic presses. (A communication.)

Dated 26*th January*, 1855.

195. W. Townsend, Coventry—Vehicles without axletrees.
198. W. Beales, 12, Arlington-street, Camden-town—Cartridges.
199. G. Bell, 21, Cannon-street West—Air springs. (A communication.)
200. J. Lesse, jun., Manchester—Printing calicoes.
201. W. T. Vose, Massachusetts—Pumps.
202. J. Atkin, Basford, and M. Miller, Nottingham—Water meter.
203. W. R. Morris, Deptford—Preventing waste of water from service pipes or cisterns.
204. G. Searby, 154, Sloane-street—Boots and shoes.
205. R. Mallet, Dublin—Hollow shot and shells.

Dated 27*th January*, 1855.

209. W. Onion, Birmingham—Gas stoves.
211. P. A. le Comte de Fontaine Moreau, 4, South-street, Finsbury—Thimbles. (A communication.)
212. H. and R. Nightingale, Chorley—Cotton machinery.

Dated 29*th January*, 1855.

214. J. Wilkins, 2, New Charles-street, City-road—Damping adhesive stamps or labels.
216. H. L. Dormoy, Paris—Platting machinery. (A communication.)
218. J. Imray, 64, Bridge-street, Lambeth—Locks.
220. A. Collinge, 65, Bridge-road, Lambeth—Spring hinges.
222. J. H. Johnson, 47, Lincoln's-inn-fields—Looms. (A communication.)
224. A. Pichot, Poitiers—Postage paper and envelopes,
226. E. Cunnah and J. Hampson, Liverpool—Turnstile counting apparatus.

Dated 31*st January*, 1855.

234. A. Lyon, Windmill-street, Finsbury—Sausage-making machines.
236. G. Price, Wolverhampton—Iron safes.
238. J. R. Delguey-Malavas, Montbrison—Motive power.
240. J. F. Porter, Besborough-street—Bricks.
242. A. E. L. Bellford, 32, Essex-street, Strand—Forging nuts and washers. (A communication.)

INVENTION WITH COMPLETE SPECIFICATION FILED.

249. W. Soelman, 3, Bennett-street, Fitzroy-square—Naukinetic or ship moving machine.—2nd February, 1855.

WEEKLY LIST OF PATENTS SEALED.

Sealed February 9*th*, 1855.

1764. George Weston, Sheffield—Improved veneering apparatus.
1771. William Todd and Jacob Todd, Heywood—Improvements in power-looms for weaving.
1800. Julian Bernard, Club Chambers, Regent-street—Improvements in the manufacture of boots and shoes or other coverings for the feet.
1854. Aristide Balthazard Bérard, Paris—Improvements in the manufacture of gas, coke, and other products from coal, and in apparatus for that purpose.
1875. Richard Archibald Brooman, 166, Fleet-street—Improvements in obtaining motive power.
1878. Auguste Antoine Legras, Paris—Improved apparatus for regulating the level or flow of liquids.
1921. Pierre André Decoster, Paris—Improvements in extracting the saccharine parts of the sugar-reeds, and of other sacchariferous substances.
2017. Samuel Crabtree, Bradford—Improvements in machinery for combing wool, hair, and other fibrous substances.
2213. William Wain, Brunswick-street, Stamford-street—Improvements in the construction of screw propellers.
2494. Walter Blundell, 29, New Broad-street—Improved apparatus for treating or preparing any part of the human body requiring to be surgically operated upon for the purpose of totally or partially benumbing the sense of feeling at the desired part of the human body.
2534. Robert Christopher Witty, 9, Toriano-avenue, Camden-road-villas—Improvements in illumination by means of artificial light.
2570. John Fairrie, Church-lane, Whitechapel—Improvements in preparing solutions of sugar for filtration.
2584. Edward Acres, Pouldrew Mills, Waterford—Improvements in drying wheat and other grain.
2634. William Charles Day, Strand—Improvements in portable camp bedsteads and bedding.
2683. William Donald and William Heginbotham, Carlisle—Improvements in looms.

Sealed February 30*th*, 1855.

1773. Henry Smith, Smethwick—Improvements in the manufacture of wrought-iron wheels.
1775. John Greaves, and Charles Michael Greaves, Birmingham—Improvements in the manufacture of certain kinds of spectacle frames.
1779. Robert Caunce, Bolton-le-Moors—Improvements in machinery for preparing cotton and other fibrous materials.
1792. Thomas Wallworth, Manchester—Improvements in purifying and treating grain and in dressing flour, and in machinery for these purposes.
1797. John Hackett, Derby—Manufacture of new and improved fabrics of cotton and of linen, and of cotton and linen combined.
1801. Louis Christian Koeffler, Rochdale—Improvements in extracting coloring matter, also applicable for extracting size or glue from animal substances.
1816. Samuel Kershaw, and James Taylor, Heywood—Improvements in carding engines.
1830. William Vitruvius Greenwood and John Saxby, Brighton—Improvements in signal lamps.
1331. James Worrall, junior, Salford—Improvements in the method of cutting fustians, cotton velvets, and other piled goods or fabrics.
1836. Stopford Thomas Jones, 3, Union-court, Old Broad-street—Improvements to reduce and wash minerals to extract metal therefrom, especially gold.
1838. Robert Barlow Cooley, High-street, Notsingham—Improvement in gloves.
1880. Robert McConnel, Glasgow—Improvements in shutters for doors and windows.
1905. Julian Bernard, Club Chambers, Regent-street—Improvements in the manufacture of combs.
1915. Joseph Worthington, Manchester—Improvements in counters or fitting of shops, warehouses, and offices, for arranging, preserving, and exhibiting articles therein.
1962. Robert Macallister, Glasgow—Improvement in fitting or applying screw propellers to ships and vessels.
2390. Eugene Antoine Lépine, Madrid—Powders and collyrium for curing the diseases of the eyes without the use of surgical operations, to which invention he has given the name 'Lepine's ophthalmological powders and collyrium.'
2460. Alfred Tylor, Warwick-lane, Newgate-street—Improvements in crimping machines.
2471. William Aristides Vérel, Macduff, Banff—Improvements in grinding or pulverising.
2574. Richard Archibald Brooman, 166, Fleet-street—Apparatus for regulating tension in spinning frames. (A communication.)
2598. James John King, and Thomas Brindley, 2 Leonard-square, Finsbury—Improvements in cigar cases, card cases, and other similar cases.
2617. John Nesmith, Lowell, Massachusetts—Manufacture of wire netting and wire fence by power.
2698. John Henry Johnson, 47, Lincoln's-inn-fields—Improvements in the manufacture of railway and other wheels. (A communication.)
2708. John Henry Johnson, 47, Lincoln's-inn-fields—Improvements in electro-magnetic engines. (A communication.)

APPLICATION, UNDER THE ACT 5 AND 6 WILL. IV. C. 83., S. 3. FOR CONFIRMATION OF VOID LETTERS PATENT.

7774. William Henry Porter—Anchors, 18th February. (Application refused.)

WEEKLY LIST OF DESIGNS FOR ARTICLES OF UTILITY REGISTERED.

No. in the Register	Date of Registration.	Title.	Proprietors' Name.	Address
3683	Feb. 10.	Safety Bracelet Clasp............................	Mége and Zachnsdorf	6, Frith-street, Soho-square.
3684	,, 13.	Carriage Iron for Carriage Lamp	Clark and Timmins	Birmingham.